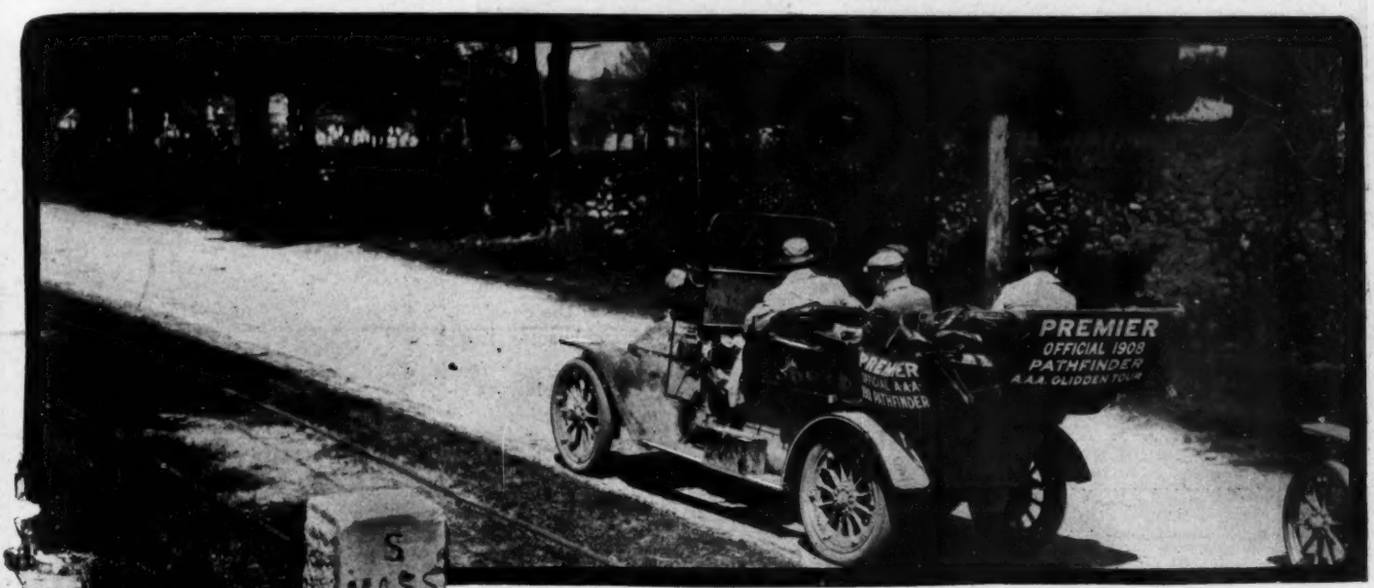
VOL. XIII No. 22 CHICAGO, MAY 28, 1908 $3.00 PER YEAR

MOTOR AGE

PATHFINDERS COMPLETE GLIDDEN ROUTE

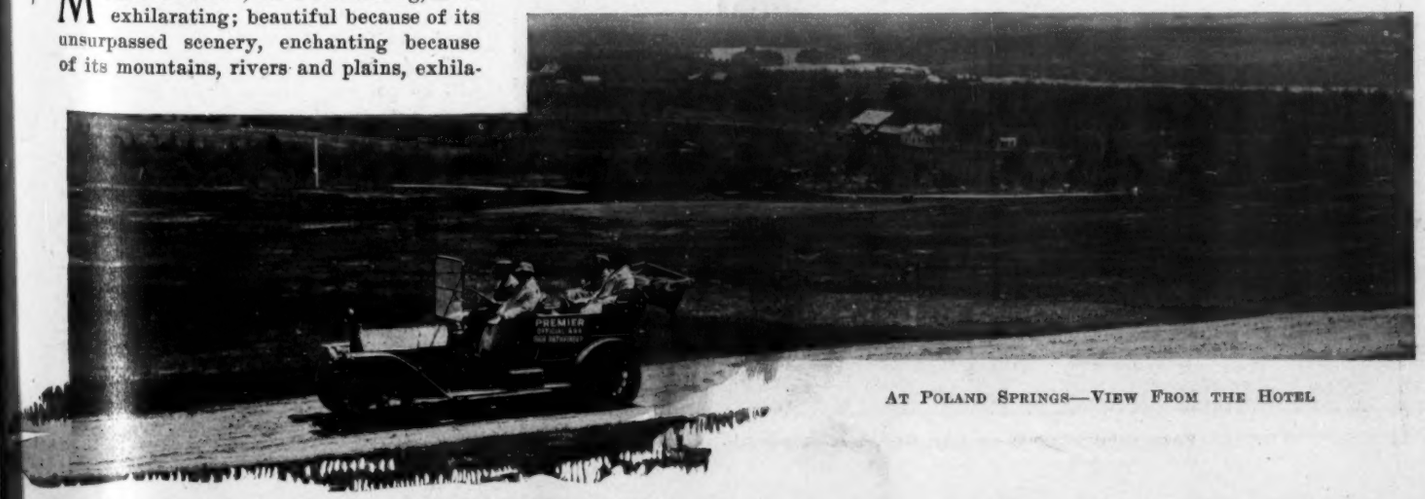


PATHFINDER AT STATE LINE DIVIDING MASSACHUSETTS AND NEW HAMPSHIRE

MORE beautiful, more enchanting, more exhilarating; beautiful because of its unsurpassed scenery, enchanting because of its mountains, rivers and plains, exhilarating on account of its perfect clear air, hemlock and pine essence—this in brief is what will make the 1908 A. A. A tour more popular than its predecessors. Scenic as all Glidden tours of the past may have been, they will fade into oblivion when compared with the approaching reliability contest for the Glidden and Hower trophies, as laid out by the Premier pathfinder, in charge of Secretary Dai H. Lewis of the A. A. A. touring board.

Tourists could not ask for a better route. Even the chronic faultfinder can find little, if anything, to grumble about with this year's excellent route. The entrants will find mile after mile of beautiful macadam roads, intercepted at intervals naturally with some bad spots, but taken all in all the route is over some of the very best roads in the country. The roads through New England are well known to all motorists in the eastern states.

Among the important mountain ranges to be traversed are the Alleghanies, the Catskills, Berkshires, the White mountains of New Hampshire and the picturesque



AT POLAND SPRINGS—VIEW FROM THE HOTEL

LOGGING ONE OF THE OCCUPATIONS AT DIXFIELD, ME.

Green mountains of Vermont. Such rivers as the Susquehanna, Delaware, Androscoggin, Kennebec, White river and numerous smaller streams will be crossed and followed during the tour. The route is:

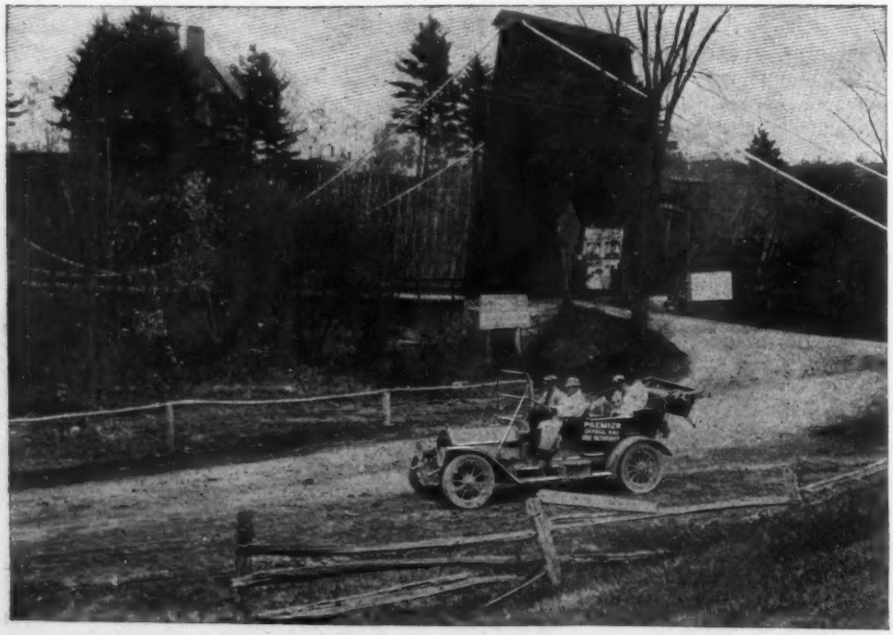
	Miles
First day—Buffalo to Cambridge Springs	117.4
Second day—Cambridge Springs to Pittsburg	110.2
Third day—Pittsburg to Bedford Springs	106.4
Fourth day—Bedford Springs to Harrisburg	107.3
Fifth day—Harrisburg to Philadelphia	133.5
Sixth day—Philadelphia to Milford	132
Seventh day—Milford to Albany	158.5
Eighth day—Albany to Boston	194.2
Ninth day—Boston to Poland Springs	154
Tenth day—Poland Springs to Rangeley	141.7
Eleventh day—Rangeley to Bethlehem	130
Twelfth day—Bethlehem to Saratoga	184.5

The total mileage for the tour is 1,669.7 miles. The odometer on the Premier pathfinder registered exactly 1,992 miles.

Previous stories have told of the tour starting from Buffalo on July 9 and taking in the oil, coal, coke and steel regions of Pennsylvania; the run through the Delaware water gap from Albany to Boston through the Berkshires and over the excellent state highways of Massachusetts to Boston.

While the run through the Delaware water gap and over the Alleghanies is through decidedly picturesque country, there is no question but that the tour from Boston to Saratoga via New Hampshire, Maine and Vermont will eclipse that of any other section of the route.

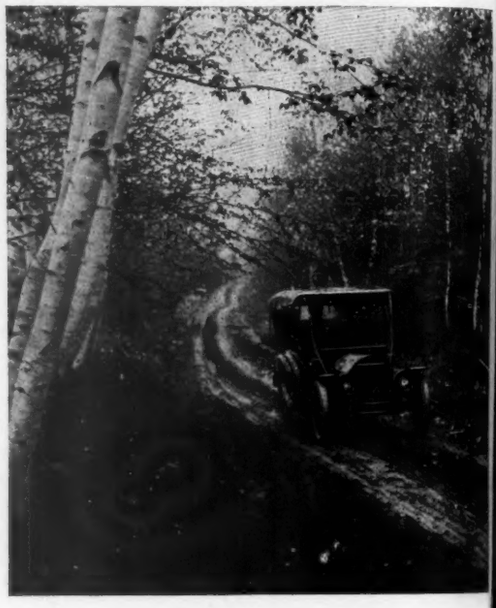
The route from Boston to Poland Springs is by way of Cambridge past Harvard university, through Somerville to the Middlesex Fells parkway on to the Revere Beach parkway and a 2-mile ride along the beach and past the amusement places. This day's run brings the tourists for the first time to the shores of the Atlantic.



SUSPENSION BRIDGE ON THE RUN TO BETHLEHEM

From Revere Beach the route leads to Lynn, to the Swampscott boulevard along Swampscott beach to Salem, known as the Witch City. From here the tourists will pass through Newburyport, Portsmouth, N. H., where a turn seaward is again made to Rye beach and past Boer's head. The view of the ocean from this point is excellent and one can look to the horizon.

Maine is entered at Kittery, and at York the Portland post road is traversed, and from there the route is through a few small lumber camps, while the roadway is strewn with the famous pines, hemlocks and fir trees of Maine. In the vicinity of Kennebunk, there are several stretches of dandy roads. The roads from Boston to Portland are excellent for touring and no hill is encountered which is larger than a knoll. From Portland the route leads through Gray, Shaker Village to the Summit house, Poland Springs, where Sunday, July 19, will be spent. From here the Presidential range of the White mountains can be seen, 90 miles away. Mount Washington, the highest peak east of the Mississippi, can plainly be seen towering nearly 6,000 feet heavenward. The scenery is magnificent, and in all directions towering mountains can be seen for miles. It is an ideal spot for a stopover.

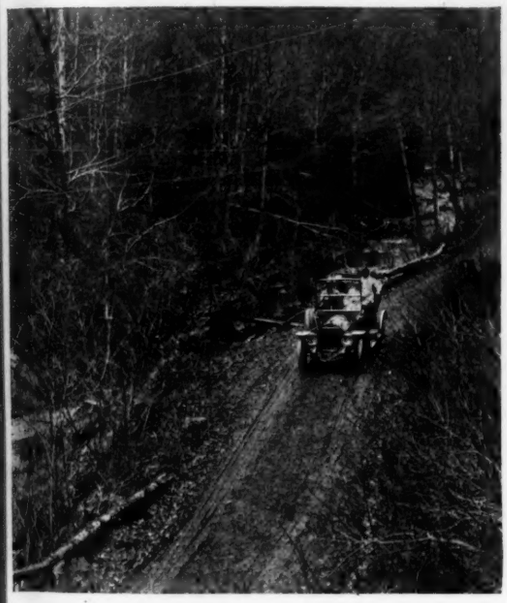


HIGHWAY LINED WITH WHITE BIRCH

The day's run from Poland to Rangeley will be not only beautiful but one of the hardest during the entire route. The route leads through Auburn over the Androscoggin river into Lewiston. To the left of the tourists while crossing the bridge into Lewiston are the fascinating falls of this river. The run through Augusta, Waterville and up to Farmington is without particular interest, except for the Kennebec river, which is followed from Augusta to Waterville and the unusually fine country roads that abound.

Up to Farmington there are very few hills. The route chosen this year from Waterville

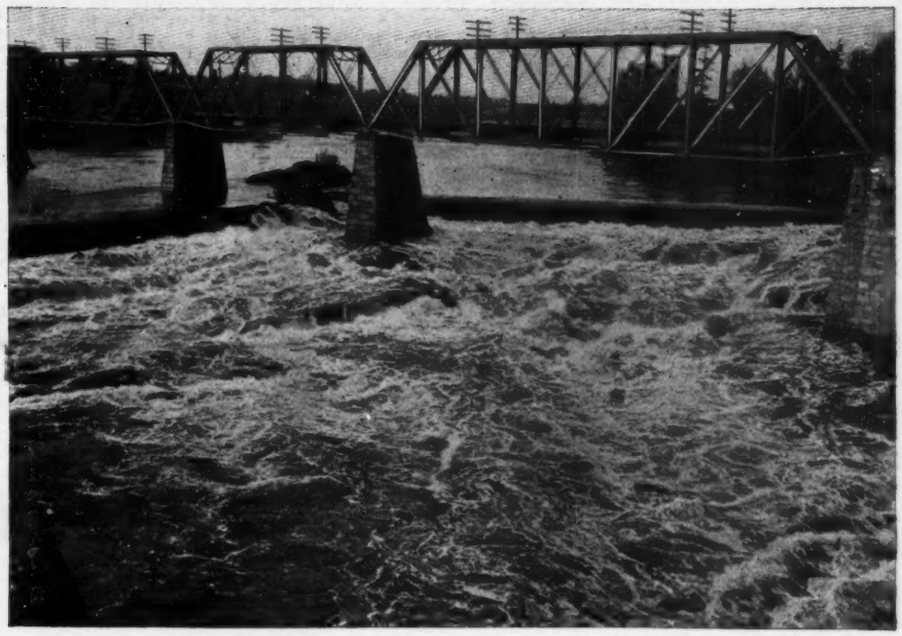
to Rangeley is not through Skowhegan and the Dead River district, as was the case 2 years ago. After leaving Farmington, the roads are in excellent condition with many level stretches up to Strong, 20 miles from Rangeley. From Strong to Rangeley very narrow and rocky roads predominate. The route lies along Sandy Creek. There are many water breakers and the Premier pathfinder struck many soft places with practically no bottom. A mile and a half from Rangeley the Premier struck one of these soft spots and sank to the radiator. On one side both hubs and the running board were completely buried in the mud. For 3 hours the car was in this quagmire, which was one of the worst



ROAD ONLY TOUCH OF CIVILIZATION

of the entire pathfinding trip. It was slow shoveling, as the soft clay flowed back as fast as it was thrown out. After 4 hours of digging, filling in with rocks, laying planks and making detours into the field, the Premier reached the hotel with hardly a spoke in sight, so completely were the wheels choked with mud, but it was with some satisfaction that the pathfinders learned the car was the first to reach Rangeley this spring.

A few miles north of Farmington, one begins to get right next to nature. The narrow roadway leads into the dense main forest where nature is found in all its solitude. It is certainly the forest primeval and the murmuring pines and hemlocks seemed to wave a welcome to the pathfinders. Great fallen "monarchs of the forest" were stretched on all sides, in many cases forming natural bridges across the streams. Several recently deserted logging camps are near the roadway. None but those who have visited the Rangely lakes and who have been through the dense Maine forests can appreciate that glorious country and the "happy hunting ground" of all sportsmen. The air is permeated with the essence of fir, balsam and hemlock. One can imagine how the Indian savage in the days of yore tramped through these forests hunting the deer and skimmed over the 40 miles of lakes in his birch bark canoe. For rest of body and contentment of mind, there is no more ideal spot.



GLIDDENITES WILL SEE THE FALLS AT WATERVILLE, N. H.

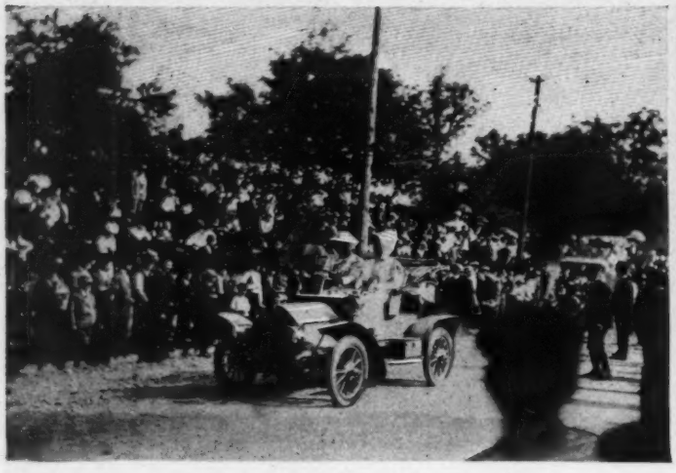
From Rangeley to Bethlehem the following towns are passed through: Madrid, Weld, Dicksville, Rumford Falls, Shelbourne, Gorham, circle Cherry mountain and Carroll. The beauty of the White mountains, especially the Presidential range, is well known to Gliddenites. Among the many wonderlands of this vast continent none possesses the variety of attractions of the White mountains.

The last day of the tour, a distance of 184.5 miles, between Bethlehem and Saratoga Springs, will not only be one of the hardest but the most beautiful. The route is through the magnificent Green mountains of Vermont, and includes Littleton, Lisbon, Newbury, Bradford, Hanover, past Dartmouth college, White River Junction, Woodstock, Bridgewater, Rutland, Castleton, Fair Haven, Whitehall, Glens Falls to Saratoga.

The roads are in excellent shape until reaching the Green Mountain Notch, where a climb of 3½ miles will be made reaching an altitude of 4,600 feet. This is a very mountainous, narrow and rocky road. During the day's run the Connecticut river was crossed at Wells river, Vt., and the contestants will pass through the Connecticut valley and the White river valley. White river is followed and crossed many times from White River Junction by the Gliddenites.

LOG CABINS ARE FREQUENT ON ROAD TO RANGELEY LAKE

RYAN IN STEARNS STARS AT CINCINNATI



START OF STODDARD-DAYTON IN THE WOMEN'S EVENT

RYAN MAKING HIS FAST CLIMB IN THE STEARNS

CINCINNATI, O., May 25—The hill-climbing contest given under the auspices of the Automobile Club of Cincinnati on Saturday afternoon was the most successful event of its kind ever held by the club. Stanley avenue, where the hill-climb was pulled off, was the Mecca for motorists on Saturday and every car in Cincinnati and many from Ohio, Indiana and Kentucky were lined up. The big field, from which an excellent view of the finish was afforded, was dense with people. It was a record-breaking crowd for attendance at a hill-climb. A more ideal place for holding contests of this kind could not be imagined. The ½-mile hill, which contains two short curves, was in full view of everyone from start to finish. The course was in fine condition and was as smooth as a race track. The hill is a steep one, 11 per cent grade, and it was the unanimous opinion that no better one could have been secured for speed tests. Well-known drivers—Walter White, Jean Bemb, John J. Ryan and many others took part in the contest.

Chairman Val Duttenhofer, Jr., received seventy-eight entries for the eight events, more than was ever entered in any hill-climb in the United States, with the exception of the Chicago event, which had eighty. All the classes were well filled and hotly contested. A telephone system was strung along the course and the timers at the finish were informed in this way when a car had started up the incline. The timers at the top telephoned back to the starter the time of the finish. To reduce to a minimum the possibility of an accident, only one contestant was allowed on the hill at a time. More than 400 motor cars were stationed at various points along the course and the detail of police on hand experienced some difficulty in keeping the large and enthusiastic crowd from venturing on the track. The residence and extensive grounds of Benjamin Greenwald, directly opposite the finish, were opened to the club members.

The climbs were run without a hitch of any kind and excellent time was made. Not a car was stalled on the hill in any class. The untiring efforts of Dr. Bonifield, president of the club and referee of the hill-climb; Chairman Val Duttenhofer, Jr., of the runs and tours committee; Starter Sid Black; Timers D. C. Coughlin, C. Gordon Neff, Louis Merkel and Morris Longenecker and the aid and counsel of R. C. Crowthers and Charles Hanauer were largely instrumental in making the hill-climb the great success it was. The runs and tours committee and the automobile club were the recipients of many congratulations on the manner in which the contests were conducted.

The accident that occurred in the free-for-all was the only unpleasant incident of the day's sport. Walter White, of Cleveland, driving a White steamer, was seriously injured. He had covered the distance in :32⅖ and had gone some 50 feet beyond the finish. He was moving at a terrific rate of speed at the time and skidded around a short but not dangerous curve in trying to avoid the crowd which was in the way. His car turned half turtle and White was thrown 30 feet up the hillside. He sustained a compound fracture of his right leg and his face was badly lacerated. He was removed to the hospital at once and will be laid up several weeks. The accident was occasioned through no fault of the club, White claiming he was forced to turn to avoid the crowd on the course.

The people, who lined the course, rushed to the scene of the accident in such numbers that after one more car made the climb in this event—the last one on the program—the sport was discontinued.

John J. Ryan, in the class E free-for-all race, made the best time of the day. He covered the distance—½ mile—in :31⅘. He also won the special race for club members in the fast time of :34⅕. In the other event, in which he was entered—class D—he had to stop his car for a short time when he was half way up the hill. His gasoline supply had been turned off. Third was the best he did, but he waived any claim to any of the prizes for this race. Permission was then given him to compete against time in this class. He did :36⅗. His time was the fastest ever made in any hill-climb in Cincinnati. Summaries of the event:

CLASS A—CARS LISTED AT $1,000 AND UNDER

Car	Entrant	Time
Ford	Auto Motor Car Co.	1 :07
Reo	L. A. Thompson	1 :22 1-5
Jackson	C. D. Paxson	1 :22 4-5

SPECIAL CLASS—FOR ELECTRICS

Babcock	Babcock Elec. Co.	1 :34 1-5
Babcock	R. S. Payne	2 :24 3-5

CLASS B—CARS LISTED FROM $1,000 TO $2,000

Jackson	C. D. Paxson	:57 1-5
Overland	Sub. Auto Gar. Co.	:58 4-5
Klink	C. F. Schuberth	1 :13 1-5

SPECIAL EVENT—FOR WOMEN

Thomas	Miss B. Burkhold	:45 4-5
Packard	Mrs. C. Bultman	:47 2-5
Stoddard-Dayton	Mrs. D. P. Roberts.	:58 4-5
Pope-Toledo	Miss H. Stallo	1 :01

CLASS C—CARS LISTED AT $2,001 TO $3,500

Thomas-Detroit	J. H. Ratliff	:46 2-5
Knox	Queen City Auto Co.	:47 2-5
American	Jungclas Auto Co.	:50 2-5

CLASS D—CARS LISTED AT $3,501 AND ABOVE

Stevens-Duryea	P. G. Thompson, Jr.	:43
Stearns	A. V. Stegeman	:46 3-5
Stearns	John J. Ryan	:54 1-5

CLIMB FOR CLUB MEMBERS

Stearns	John J. Ryan	:34 1-5
Stevens-Duryea	E. A. Conkling	:47 1-5
Thomas-Detroit	G. H. Ratliff	:47 1-5

CLASS E—FREE-FOR-ALL

Stearns	John J. Ryan	:31 4-5
White	W. C. White	:32 3-5
Pope Hartford	A. Hickenlooper	:52 4-5

RECORD DRIVE BY GIUPPONNE

Palermo, Sicily, May 15—With a little one-lunger measuring but 3.9 inches bore, an average speed of 28.5 miles an hour has been accomplished in Europe's first road race of the season, over 186 miles of the most tortuous, precipitous and mountainous road of this mountainous country. Giuppone is the man who has won the Sicilian voiturette race, his little Lion-Peugeot, which led him to victory, having the honor of beating the heavy car record established 2 years ago by Cagno. There were eleven starters lined up at Bonformello at 7 a. m. of Sunday, May 10, the

head of the line being held by Naudin on a Sizaire-Naudin, a position which was given him because of his victory last year. Mechanically France only was represented in the race, the three firms engaged being Lion-Peugeot, Sizaire-Naudin and de Dion. Among the drivers the tricolor had not all the honors, for Vincenzo Florio, donor of the cup and founder of the Targa which bears his name, was at the wheel of one of the small two-cylinder de Dions. Giuppone, the winner, also claimed Italy as his patrie. At the end of the first of the two rounds, a distance of 93 miles, Giuppone was at the head, his Lion-Peugeot having covered the mountainous course in 3:16:53. The length of the course made it somewhat uninteresting for the spectators, and it would have been really dull but for the admirable telegraphic service which early on the second round brought in news of the overturning of both Naudin and Sizaire, without, however, any accident to the men. Giuppone's victory then was practically certain. Summarized, the result of the race is: Lion-Peugeot, Giuppone, 6:31:30; de Dion, Cammarata, 6:50:49; de Dion, Tasca, 7:11:39; de Dion, Olsen, 8:07:06. The winning car was a single-cylinder of 3.9 inches bore and 5.5 inches stroke. Unlike most of the French voiturettes, final drive was by double side chains. The de Dion cars all had two-cylinder engines of 4.9 inches bore. The winning Lion-Peugeot, as well as the two Sizaire-Naudins are in the voiturette grand prix.

LONG WISCONSIN TOUR

Milwaukee, Wis., May 25—The Milwaukee Automobile Club will hold its first annual Wisconsin trophy tour on July 11 to 15, inclusive, and plans are now being completed for a tour of 5 days' duration over a 500-mile route, from Milwaukee to Wausau, Wis., the home of Neal Brown, president of the W. S. A. A., and return. The tour will be strictly for club members. Tentative routes have been selected. From Milwaukee the trip to Wausau will take the party through Menomonee Falls, Richfield, Schleisingerville, St. Laurence, Theresa and Fond du Lac, Oshkosh, Medina, Dale, Fremont, Weyauwega, Waupaca, Amherst, Stevens Point, Knowlton, Mosinee, Schofield and Wausau. Here the Wausau A. C. will entertain at its pretty clubhouse. From Wausau the party will drive due east to Birnamwood, a wooded and secluded spot, where Neal Brown holds forth. From Birnawood the route is through Tigerton, Clintonville, New London, Hortonville, Appleton and Neenah-Menasha, the twin cities at the head of Lake Winnebago. Two routes are proposed for the homeward journey, one taking the party around the east shore of Lake Winnebago, through Fond du Lac, West Bend and to Milwaukee; the other to Manitowoc, thence down the west shore of Lake Michigan, through Sheboygan, Port Washington and into Milwaukee.

ALBANY HAS A CLIMB

Stevens-Duryea and the Apperson Jackrabbit Win Honors on Hill —Affair is a Success

Albany, N. Y., May 23—Though hill-climbing events have not been included in its catalog of activities in the past, the Albany Automobile Club's first contest, which was held on Menand's hill today, proved conclusively that the successful management of such an affair was something easily accomplished by the organization. The course had been affected somewhat by Friday's rain, but the treatment of oil it received subsequently put it in fine condition for the climb. The free-for-all events and the special for six-cylinder cars provided the major portion of the excitement of the day. The former brought forth two double winners, C. S. Ransom's Stevens-Duryea six making the best time of the day, :53⅕, in the free-for-all touring cars, while he brought the same car home a winner in the six-cylinder event in :54⅖. In the free-for-all runabouts, Chauncy D. Hakes' Apperson Jackrabbit made the ½-mile grade in :58⅕, and in the event for runabouts listing above $3,000, repeated its performance by winning in exactly the same time. A Knox was second and a Locomobile third. In addition to the Stevens-Duryea six taking first in the touring car and six-cylinder events, cars of the same make also took first and second places in each, while in the latter a Stevens-Duryea was also third, a Pierce-Arrow coming in fourth. There were four other events for gasoline touring cars listing at different prices, and five events for runabouts, the prizes offered in each case consisting of gold cups. Summaries:

FREE-FOR-ALL TOURING CARS—ALL MOTIVE POWERS

Car	Driver	Time
Stevens-Duryea six	C. S. Ransom	53 1-5
Stevens-Duryea six	Samuel Parsons	1:09
Fiat	J. B. Taylor	1:09 3-5
Thomas Flyer	W. H. Buckley	1:10 2-5
Stevens-Duryea light six	Karl Isburgh	1:10 3-5
Lozier	Parker Corning	1:12
Pierce-Arrow	J. P. Randerson	1:20 2-5
Welch	Lucey Motor Car Co.	1:23

SIX-CYLINDER CARS, $6,000 AND OVER

Stevens-Duryea	C. S. Ransom	:55
Stevens-Duryea	G. Y. Lansing	1:01 3-5
Stevens-Duryea	Samuel Parsons	1:10
Pierce-Arrow	J. P. Randerson	1:12
Stevens-Duryea	Karl Isburgh	1:17 1-5

GASOLINE TOURING CARS, OVER $3,000

Locomobile	E. W. Leahy	1:09 3-5
Fiat	J. B. Taylor	1:10
Lozier	Parker Corning	1:11 3-5
Thomas Flyer	W. H. Buckley	1:12 4-5

GASOLINE TOURING CARS, $2,001 TO $3,000

Thomas 40	J. C. Birdseye	1:06 4-5
Pope-Hartford	Troy Auto. Ex.	1:18 2-5
Elmore	George W. Walt.	1:45

GASOLINE TOURING CARS, $1,251 TO $2,000

Maxwell	W. Klingsburg	1:33
Maxwell D	Central Auto Co.	1:45 1-5

GASOLINE TOURING CARS, $851 TO $1,250

Cadillac		1:36

FREE-FOR-ALL RUNABOUTS, $5,000 AND OVER

Apperson Jackrabbit	C. D. Hakes	:58 1-5
Knox Model L	Knox Auto Co.	1:01 1-5
Locomobile	Taylor Auto Co.	1:04
Locomobile	Taylor Auto Co.	1:05
Stoddard-Dayton	J. Smith Jacobs	1:10 3-5
Stoddard-Dayton	C. A. Warren	1:12 1-5
Knox Model H	Knox Auto Co.	1:14
Oldsmobile	A. J. McClure	1:15
Reo	B. A. Burtiss	2:00

RUNABOUTS, $3,000 AND OVER

Apperson Jackrabbit	C. D. Hakes	:58 1-5
Locomobile	Taylor Auto Co.	1:05
Locomobile	Taylor Auto Co.	1:05

RUNABOUTS BETWEEN $1,251 AND $2,000

Maxwell K	Central Auto. Co.	1:28 3-5
Stoddard-Dayton	C. V. Yukers	1:39
Aerocar	Schenectady Auto Exchange	1:44

RUNABOUTS BETWEEN $851 AND $1,250

Reo	B. A. Burtiss	1:46 3-5

RUNABOUTS $850 AND UNDER

Ford model L	C. F. Weeber Mfg. works	1:35 1-5
Ford model S	F. E. Harrington	1:35 2-5
Ford runabout	F. W. Batter-shall	1:41 1-5
Maxwell	Schenectady Auto Exchange	1:49

WILKES-BARRE CLIMB BIG ONE

Wilkes-Barre, Pa., May 25—Indications point to a larger and more comprehensive entry list for next Saturday's hill-climb on Giant's Despair than ever before in the history of the blue-ribbon event. All of the twelve events on the program have already filled nicely, with today's and tomorrow's mails yet to hear from. The work of preparing the mountain road for the contest has been practically completed, and local entrants have been trying out during the early morning hours all the past week. Arrangements have been made, as usual, whereby out-of-town entrants who arrive here a day or so before the climb can time up their cars over the course during certain hours of the day. The Sheldon Axle Works Co. has hung up a $200 trophy as first prize in the free-for-all, and the Wilkes-Barre Automobile Club has offered a trophy valued at between $500 and $1,000 as first prize in the gasoline stock chassis event. In the gasoline stock car, $2,001-$3,000, four-cylinder gasoline, $4,000 or over, and six-cylinder gasoline, $2,500 or over, the winners in each will receive a trophy valued at $125. In all the other events gold, silver and bronze medals will be awarded, and second and third in each of the five trophy events will also receive silver and bronze medals. The rules call for a flying start in all cases, and any manufacturer or agent entering a stock machine in any event must agree to sell it at the entered price.

BIG FIELD IN RUSSIAN RACE

Paris, May 22—Twenty-four cars of all categories are entered for the St. Petersburg-Moscow race to be run in connection with the Moscow exhibition May 31. Main interest lies in the class for racers of more than 130 millimeters bore, which has united a 1908 grand prix Benz to be driven by Hemery, a special 150-millimeter Berliet, three 1907 racers from Dietrich, two from Fiat, a Darracq, an Itala and a Mercedes. Wagner will handle last year's Targa Florio racer in the 106 to 130-millimeter class, and will have as competitors a Berliet, Nagent, N. A. G. and Darracq. A British Humber and an Italian Clement are alone in the 77 to 105-millimeter class, and seven cars share the two low-power classes for one, two or four-cylinders.

RULES FOR THE CHICAGO RELIABILITY RUN

CHICAGO, May 27—Delayed by the hill-climb in the preparation of rules for its 4-day reliability run next month, the Chicago Motor Club was unable to announce the regulations until today, when the technical committee completed its work. The report shows a revision of the plans in that instead of asking the cars to make a triple century a day the distance is shorn to 250 miles per diem, making a total of 1,000 miles instead of 1,200. The rules in full are as follows:

I

Purpose.

The object of the run is to demonstrate the reliability of all sizes, powers and types of motor cars for summer travel, speed, hill-climbing, fuel consumption and the general freedom from troubles.

II

Route

Each of the 4 days' run will be a 250-mile circuit, starting from and ending at the official garage of the Chicago Motor Club, the location of which will be announced later. Each day's trip will be a loop, the return half of the journey not being over the same course as the outgoing half, the object being to take the cars through as much new territory as possible. Checking stations will be placed at approximately 50-mile intervals.

III

Classification

There are two grand classifications—division 1 for runabouts, division 2 for touring cars.

Division 1—Runabouts, tourabouts, four-passenger speed cars and baby tonneaus—Class A, selling for less than $1,000; class B, selling for $1,000 to $1,999; class C, selling for $2,000 to $2,499; class D, selling for $2,500 to any limit.

Division 2—Touring cars—Class E, cars costing up to $1,999; class F, cars costing $2,000 to $2,499; class G, cars costing $2,500 to $3,999; class H, cars costing $4,000 and up.

Passenger Load

Runabouts, tourabouts or baby-tonneau cars in classes A, B, C and D, two passengers or more, must carry driver and one other, presumably the observer, but may carry three or four.

In classes E, F, G and H five-passenger touring cars carry four passengers and may carry more. Seven-passenger cars, carrying five, may carry more, the driver being included in each one. Passengers must average 132 pounds or more in weight.

Speed Schedule—Class A, 16 miles per hour; class B, 18 miles per hour; class C, 20 miles per hour; class D, 20 miles per hour; class E, 18 miles per hour; class F, 18 miles per hour; class G, 20 miles per hour; class H, 20 miles per hour.

Entries

The entrance fee is $100 for the first car and $50 for each subsequent entry of the same make of car by the same entrant, check for same to be made payable to the Chicago Motor Club. Entries close at midnight, Saturday, June 20. Entries made after that and until Sunday, June 21, will be charged 50 per cent extra. Entries are to be forwarded to Charles P. Root, chairman contest committee, Chicago Motor Club, 431 Wabash avenue, Chicago, Ill. No entry will be accepted unless accompanied with entrance fee and all car specifications asked for in entry blank properly given, together with name of observer and his address. Entry fee will not be refunded in case car fails to start or is disqualified during test. Each entrant provides, at his expense, an observer who must be a factory or selling force representative and which observer will not ride on the car of the entrant who nominated him.

Car Equipment

The technical committee will make an examination of all the cars before the start of the contest to determine if all of them are stock machines and regularly equipped. Each car must carry its catalog equipment of lamps, tools, tire tools, body, fenders, running board, muffler and body parts; and in addition may or may not use wind shield, top, baggage rack and lamp buffers, and supplementary tonneau seats. Cars entering with shock absorbers will be penalized for troubles connected with them. Rubber buffers for springs and rebound straps may be used without penalization for trouble with them. Special mud aprons may not be used in front of the radiator between the side members of the springs unless same is standard equipment.

Accessories Department

Speedometers, odometers, lamps, horns, clocks and other accessories, with the exception of storm fronts and tops, will be penalized for work done on them and for breaks and lost parts at final examination, which penalties will not count against car but against accessories carried.

Sealing of Cars

Metal and wire seals will be affixed by technical committee to the following parts of cars: Bonnet, coil box, battery box, hub caps, radiator, radiator caps, gasoline tank, mud apron, pilot light, thermostat, flow motor regulator and parts of ignition system not beneath bonnet or protected by bonnet seals. The brakes, clutch, transmission, universal joints and driveshaft and drive chains will not be actually sealed but protected by seals so that the penalty for gaining access to these parts will result in a penalty equal to that imposed for breaking of seals. Cars must carry mud aprons if standard equipment and where cars enter that are not sold with such wire netting must be used to obstruct access to the motor or other sealed parts, such screening to be attached by the entrant according to the reasonable demands of the technical committee in charge. Where motors are under the body of the car the floor, seat and deck boards shall be suitably sealed. Cars must report at the official garage at 9 a. m. the day before the start of the contest, where they will be officially taken over to allow the technical committee to do the sealing and make whatever inspection is necessary. After a seal is broken during the run, each successive time the driver, entrant or others gain access to the part protected by the seal a penalty equal to that imposed for breaking the original seal is levied.

Lubrication

Record will be kept of the amount of oil consumed by each contestant during the run, but this consumption will not be a factor in determining the winner. In order to facilitate this an oil clerk will have complete control of this department. Contestants will, on the day previous to the start of the run, deliver to him in bulk, or otherwise, the approximate amount of oil needed for the run, which will be credited to the contestant's account. This oil will be filled into gallon cans, carrying the official number of the car and a metal seal, and on each morning of the contest a sufficient number of these gallon cans will be given to each contestant, said supply being for use during the day. No other lubricant but that supplied in this manner will be permitted. When the cars check in crankcases will be filled to a determined level and at the completion of the run they will be again filled to this level. This being done in order to compute the exact oil consumption.

Cars may fill oilers on road at fuel controls; but where oilers are carried under the bonnet arrangements must be made, by pipes through the bonnet or otherwise, so that oilers can be filled without breaking bonnet seals. Filling oilers at other places than fuel controls penalized 2 points per man per minute or fraction thereof. Oilers cannot be adjusted during run; grease cup cannot be screwed up, and no oiling is allowed other than filling of regular lubricator at fuel controls. No aditional oilling means, such as pumps for forcing oil direct into crankcase, are allowed unless cars are regularly sold with such. The spirit of these rules is to use the regular oiling equipment, but allowing replenishing of the lubricator supply.

At the completion of each day's run, after the cars are garaged, one-half hour will be given each contestant for lubricating of all parts of the car, such as crankcase, turning of grease cups and motor transmission and other parts. This will be done under the supervision of the observer and a member of the technical committee. Seals will be broken to permit of properly lubricating during this half hour.

Tools

All tools for the car will be carried in a special tool bag furnished by the Chicago Motor Club, and which will be handed over to the observer, who will be given the key for same, and the use of tools other than those carried in the bag will result in disqualification. When tools are needed, the operator or mechanician will get them from the observer, who will keep a strict account of the tools used and see that they are delivered to him at the completion of the work. Carrying of other tools on the part of the operator or mechanician, or other passengers, or concealing of them in the car, will result in disqualification.

Tire tools may be carried in the regular tool compartment of the car, but must not be placed in the official tool bag. Drivers, mechanicians and passengers are specially requested not to carry wire cutters, pinchers or other small tools in their pocket.

Garaging

Contesting cars must be handed over to the technical committee at its club garage Tuesday, June 23, at 9 a. m., the day preceding the contest, so that all sealing of parts can be done. The cars will remain in the possession of the committee until the following morning, when they will be handed over to their drivers previous to the start of the first day's run. At the completion of each day's run the cars will be garaged under club supervision at the club garage and repairs, replacements, adjustments or attention of any nature will not be allowed on the cars from the time they are handed over to the club each night until delivered to the driver the following morning. Gasoline and water tanks may be filled each night and each morning before the start. One contestant's representative must remain with car in garage during day previous to start of contest and sign examination card.

Observers

Observers will be appointed by the entrants, one observer for each car, and the entrant must pay his observer's expenses. Observers will not ride on cars of the same make as nominated by their entrant, and will not ride on the same car on two successive days. Each observer will be responsible for the tools of each car as per regulation under "Tools." Each observer must note the length in minutes and seconds of each stop made, what work was done on the car during the stop, what tools were needed for the work and how many persons assisted. In case of breaking a seal the observer will note the seal broken and must report how many times thereafter access was gained to the part protected by the seal. The observer must see that the "running card" is stamped by the checker at each checking station; that a car does not pass a checking station before its time, and that the route is followed. Each observer must report at the club garage one-half hour before the start each morning, when he will be assigned to his car, and which car he must remain with until checking into the club garage at night. After checking in he must give a written report of the performance of the car during the day, together with the penalizations incurred. No car will be checked out from the starting point or from a control or checked in at night without its observer.

In addition to the surveillance of the cars in which they are riding, observers will be expected in so far as possible to make note of all other cars which are laid up along the road and whether the work being done on them appears to be on the tires or on the machinery.

At the end of the day's run the observer must remain with the car throughout the half hour required by the driver to lubricate same, and when this is done leave the car with the driver and hand "running card" to chairman of technical committee, getting at the same time the signature of the driver on the card.

At a checking station, or noon stop, should the observer wish to leave the car, he must not do so until a relief observer is placed on the car by the head checker. After he returns to the car he must receive a report, orally or otherwise, from the relief checker as to whether anything was done on the car. When repairs are being made on the car and men are working on different parts at the same time, making it impossible for the observer to properly watch what is being done, the observer may compel one of the workmen to stop until such time as he can properly watch him.

Observers must not interpret rules for entrants or drivers and cannot say what work may or may not be done without danger of penalization, their duty being solely to record what is done and the exact length of time required in doing it.

Checking

Cars will be checked approximately every 50 miles on the daily schedule, the checking stations to be announced after the selection of the routes; cars will also be checked in at the garage each night; and at the noon checking station cars will be checked in one-half hour or less ahead of schedule stamped on running card, and at the night stop at the moment of arrival; but at all other checking stations only at the time shown on the car's running card. Cars cannot leave noon checking station except at time scheduled on card. Cars have a 3 minute leeway at each checking station and may check in inside of that leeway without penalty. To explain: a car due at a checking station at 10 o'clock may check in from that time until 3 minutes after 10. Cars cannot check in before their scheduled time except at noon and night stops; and will be penalized, as per penalty schedule, for each minute after the 3 minute leeway. The car's running card must be stamped showing its time of checking at each checking station, by the head checker, and then returned to the observer. The running card will show the correct checking times for each checking station. Checking stations will be marked by flags and contesting cars must arrange themselves in numerical order when waiting to check in. Cars in classes A, B, E and F may check in at all checking points on a 20 mile an hour schedule, which will be shown on running card; but will be penalized on time if behind its class schedule, also shown on running card.

Preliminary Inspection

Contesting cars will be given a preliminary inspection between noon at 9 o'clock p. m., the day preceding the start of the contest. At this inspection one representative of the entrant will be present with the technical committee of the club. An inspection card showing the condition of wheels, springs, frame, front and rear axles, steering pivots, steering gear, body, motor, ignition parts, lubricating parts, cooling parts, carburation parts, exhaust parts, clutch parts, transmission and parts, brakes and operating parts will be filled out, and any noticeable points about each, that might occasion dispute later, recorded. This card must be attested to by the entrant's representative. In addition to this, the following measurements will be taken and recorded on the inspection card, being made in the presence of the entrant's representative and attested to by him:

Distance between felloes of front wheels at ground.
Distance between felloes of rear wheels at ground.
Distance between center of right front and right rear wheels at center of hub cap.
Distance between center of left front and left rear wheel at center of hub cap.
Vertical distance from center of right front spring to frame (or to top of spring in case of full elliptics).
Vertical distance from center of right rear spring to frame (or to top of spring in case of full elliptics).
Vertical distance from center of left front spring to frame (or to top of spring in case of full elliptics).
Vertical distance from center of left rear spring to frame (or to top of spring in case of full elliptics).

Cars when measured will be placed on floor mark with wheels lined up and nearest point of felloes to floor stamped, and on final measurement will be in identical position.

Measurements will be taken to determine the amount of dish in front and rear wheels and penalties imposed.

Final Examination

At the completion of the test a final inspection of all cars, not withdrawn, will take place, which examination will be a duplicate of the preliminary one and of which record will be made on the reserved part of the preliminary inspection card. The penalties resulting from these examinations will be as per penalty schedule.

Outside Test at End of Run

BRAKE TEST—The car under test approaches a braking line across the roadway at its competing speed, one set of brakes is applied and the distance measured in which the car comes to a stop. The other set of brakes is similarly tested. The

car in its class stopping in the shortest distance will be considered perfect, provided its brake performance is deemed satisfactory by the technical committee in charge. The distance required for the poorest braked car is taken and if this brake is absolutely bad it will receive 100 points penalty. The difference in distance required by this brake and the best brake is taken and a penalty for all intervening cars imposed in proportion to this distance and the 100 points penalty. The discretion of the committee must enter largely into these brake tests.

CLUTCH TEST—The front wheels of the car are rested against a vertical 8-inch curb, the low gear is engaged and the clutch let in. Failure to spin rear wheels or climb curb would be bad clutch, 30 points. Medium and fair markings can be arranged in due proportion with the 30 points.

TRANSMISSION TEST—Car must be driven on different forward speeds and reverse. Failure to drive on any one speed, 25 points. To determine if transmission is tight, stop motor, engage clutch and low gear, then push car back and forth, noting if transmission case is loose on frame.

MOTOR TEST—Gasoline cars, cylinder missing, 15 points; driving with open and closed throttle and advanced and retarded spark to test firing. Failure of one set of ignition penalized as per code.

STEAM CARS—Test to see if motor runs with open and closed throttle, if valve slide action is operative, if running temperature and pressure of steam is possible, if engine simples and note if various gauges and controls are operating properly. Penalizations as per code.

Tire Penalizations

Tire penalties count against the make of tires only, and are not counted in the car penalizations and do not in any wise affect the car's score. All work done on tires will be penalized at the rate of 2 points per man per minute for the first 15 minutes of each and every stop, and 3 points per man per minute for additional minutes for each and every stop. A tire trophy will be offered, the winner of which will be determined by computing the average penalization per tire of each make; that tire with the least average penalty being the winner. At least eight tires of one make must compete in order to be eligible for the tire trophy.

At least 50 per cent of the competing tires must be carried on rear wheels. In case any make of tire is represented by fewer than eight tires, these, while not being eligible for the tire trophy, will have their penalizations recorded. In cases where tires are covered by protectors of a different make from that of the tire, such tire will not be considered as contesting for the tire trophy, but will have its penalizations recorded. Contesting tires may be of any standard style with studded or plain treads and must not be of larger size than regularly fitted.

Accessory Penalization

Penalizations against lamps, speedometers, odometers, grade meters, clocks and similar attachments will be penalized at the rate of 2 points per minute per man for all work done, and at the completion of the contest will be penalized for lost, loose or impaired parts. These penalties will not in any wise count against the car's performance, but will show against the particular class of accessory as well as the maker of such.

Gasoline Consumption

The gasoline consumption of the different contestants will not be a factor in determining the winner and will not in any wise count against the car's performance, but will be recorded. Gasoline may be taken on before entering the garage, at the end of each day's run, and at specified stations placed at intervals of not more than 100 miles along the route. No adulterant or chemical of any nature will be allowed to be added to the gasoline under penalty of disqualification. Taking on gasoline at other than regular stations as mentioned will entail a penalty of 2 points per man per minute, or fraction thereof, for time so consumed.

Water

Water can be taken on only at fuel stops; taking it on at other points being penalized at 2 points per man per minute, or fraction, according to the time so spent.

On the Road

Cars will be started each morning at an hour to be announced the evening previous to the start, the different cars starting at 1-minute intervals. The order of start according to classes will be as follows: A, B, E, F, C, D, G and H; that is, the 16 mile per hour cars start first, followed by the 18 mile per hour ones, followed by the 20 mile per hour cars.

The schedule for the different classes must be maintained irrespective of time spent in tire troubles. To explain: Should a car lose 25 minutes at a control due to tire troubles, it must make that up, or suffer penalization due to being late at control. A car late at the first control must make the lost time up, or suffer penalization at successive controls. To explain: If a car is due at the first control at 9 o'clock, and at the second control at 11:30, then irrespective of how much time is lost before reaching the first control, the car is held to be at the second control at 11:30, and will be penalized for being late beyond the leeway allowed.

The contest committee reserves the right to vary the speed schedules according to conditions, announcements of any change being made before the start of each day's run. Drivers will be given a printed direction of the road, containing distances and turns. A confetti car will precede the contestants each day, strewing confetti before each turn that has to be made, strewing some on the turn and strewing some beyond the turn, the last being to assure the driver of the right course. At crossroads, where a turn is not made, confetti will be strewed 100 feet or thereabouts beyond the crossroad. Cars unintentionally leaving the course must return to it at the point whence they left under penalty of disqualification. Cars intentionally or otherwise leaving the course to make repairs will be disqualified at the discretion of the referee. A car leaving the course to enter or remain outside a repair shop or other place to have work done upon it will be charged double penalizations for time so spent, either in repair or replacement.

A pilot car will precede the contestants each day, starting 15 minutes ahead of the first car, and with instructions to gain not more than 15 minutes on the schedule between each two checking stations. Contesting cars must not pass the pilot car unless it is running behind its schedule; and should a contestant pass the pilot car it takes the pilot car flag and must set a pace not in advance of that which the pilot car should have set. Should the contesting car fail to maintain the proper pilot pace, it must surrender the pilot flag to the next car that is ready to take up the pace. Any contestant car setting the pilot pace will be penalized a point a minute for arrival at a checking station in advance of the pilot car's scheduled time.

Seals

A seal broken in a day will be replaced the evening of that day at the garage; and during the day it is broken each successive time that the part or parts affected by it have to be reached the penalty will be the same as for the breaking of the original seal.

Penalization Code

(1) SEALS—Breaking bonnet seal, 10 points; breaking any other seals, 5 points for each time broken, or access gained thereto after seal is broken.

(2) TIME—At checking station a car is given a 3 minute leeway—if due at a control at 10 o'clock it has until 10:03 to arrive; the head checker must call aloud the time and minutes, so that waiting contestants can hear same and check through during their proper 3 minute leeway. Cars cannot check through ahead of time marked on running card under penalty of disqualification. For each minute or fraction thereof late in checking through, 1 point.

(3) WORK—In penalizing for work done on a car, while outside of the official garage, a penalty of 2 points per man per minute or fraction thereof is imposed. Work must not be done on a car between the time it leaves the official garage and crosses the starting line and between the time it crosses the finishing line and enters the garage at the end of the day's run.

(4) REPLACEMENT — Where a replacement is made, the penalization is 4 points per man per minute or fraction thereof.

(5) OFF COURSE WORK—When a contestant enters or approaches a garage or repair shop between the start and finish of a day's run, to have work done upon it, the penalization for work is 4 points per man per minute, or fraction thereof, and for a replacement 8 points per man per minute, or fraction thereof, and where work is done by any one else other than the driver, mechanic or other passengers, the penalty will count 10 points per man per minute for such non-passengers.

(6) FINAL EXAMINATION PENALTY—The following scale of penalties shall be imposed for defects at the final examination, at the completion of the run. Parts of cars not enumerated herein and discovered faulty, impaired, lost or loose will be penalized in due proportion to those herein enumerated. The technical committee reserves the right to increase or diminish any of the enumerated penalizations as it sees fit, according to the degree and demands of the conditions.

	Points
LUBRICATION	
Broken oil lead	3
Inoperative oil lead	3
Leaky oil connection	1
Loose oiler	3
Disabled oiler	20
Lost grease cup	2
Loose grease cup	1
COOLING	
Leaky water connection	1
Leaky radiator	20
Loose radiator	4
Disabled water pump	15
Inoperative fan	2
Leaky water jacket	50
Fan belt off	1
CARBURATION	
Broken gasoline line	2
Leaky gasoline line	1
Leaky gasoline tank	1
Leaky gasoline petcock	1
Disabled throttle control	5
Broken or loose manifold	15 or 3
IGNITION	
Loose terminal	1
Broken terminal	2
Dead battery	2
Lost commutator cover	2
Disabled commutator	20
Inoperative ignition control	5
Disabled magneto	20
Loose magneto	4
BRAKES	
Broken operating devices	100
Broken brake	100
Loose operating devices	25
STEERING	
Broken tie rod or drag link	200
Bent tie rod or drag link	25
Broken steering rod	200
Bent steering rod	25
Faulty steering gear	200
Loose steering connections	15
Broken steering knuckle	150
Bent steering knuckle	15
Broken front axle	300
RUNNING GEAR	
Broken spring leaves	5
Broken spring clips	5
Broken spring seating	15
Loose spring clip	1
Loose spring horn	15
Broken frame side member	500
Broken frame cross member	150
Bent frame pieces	75
Broken strut rods	25
Broken torsion rods	25
Lost muffler	5
Broken muffler	3
Loose muffler	2
Broken wheel	100
Loose wheel spoke	5
Broken wheel spoke	10
Broken running board	6
Broken fender iron	6
Broken fender	5
Loose fender	2
Lost mud apron	8
Broken mud apron	5
Broken rear axle	300
MACHINERY PARTS	
Broken valve	5
Broken or impaired valve spring	2
Broken cam	500
Broken camshaft	200
Broken crankshaft	500
Bent crankshaft	250
Broken valve rocker arm	10
Broken push or valve lift arm	10
Broken transmission shaft	100
Broken cardan shaft	100
Broken driving chain	50
Broken gear or pinion	25
Broken bearings	10
Broken body or chassis bolts	2
Loose body or chassis bolts	1
Lost body or chassis bolts	2
Broken clutch	250
Broken or impaired universal joint	50
Broken or lost bonnet fasteners	2
Loose bonnet fasteners	1
Broken or impaired sprags	5
Broken shock absorber	5
Loose shock absorber	2
STEAM	
Leaky condenser	20
Leaky generator	50
Faulty thermostat	20
Faulty pilot light	20
Faulty flow motor	20
Faulty gauge	5
Steam leak in line	1
Water leak in line	1

Penalization Code

(7) FRONT AND REAR AXLES—No penalty when spread between two front or two rear wheels measured at the ground is ¼ inch or less. When spread exceeds ¼ inch, the penalty is 10 points for each ⅛ inch or fraction thereof.

(8) SPRINGS—A sag of ½ inch is permitted without penalty. For each additional ¼ inch or fraction thereof, 5 points.

(9) FRAME—Measurements will be made to determine the amount of sag in the side members of the frame.

(10) MOTOR STOPS—Motors may be stopped at the noon control, or checking station, and while gasoline is being taken on. Other stoppages of motors between the starting and finishing of each day's run will result in a penalty of 2 points per minute, or fraction thereof, for time stops.

Weighing

During the contest all cars will be weighed with their regular touring equipment, but without passenger load.

Disqualification

Disqualifying of any car rests with the referee, who will investigate the conditions as reported by the observer, driver, passengers or other complainants.

Protests

Contestants entering protests must submit the same in writing at the conclusion of any day's run, together with a deposit of $25, which will be retained by the Chicago Motor Club if the protest is not sustained. In case of protests, those making them must provide witnesses and other information.

Accident Liability

It will be assumed that every contestant is acquainted with the rules of the contest, and by entering agrees to abide by the said rules. In the event of a dispute in the interpretation of the said rules, the decision of the contest committee shall be final, which committee reserves the right to alter or amend these rules as it may deem expedient until noon, Monday, June 22. Entrants shall hold the Chicago Motor Club, its officers and members, harmless and indemnify them against all losses or damage resulting directly or indirectly, or growing out of the operation, management or control of the car entered by them from the time the car is handed over to the contest committee on the morning of Tuesday, June 23, 9 a. m., until delivered to them at the completion of the test. The Chicago Motor Club will not be responsible for damage done to any car, passenger or contents during the test or for the theft of any car, accessory or contests, the car at all times being at the entrant's risk.

False Advertisements

Any contestant who advertises or in any means whatsoever publishes the performance of his car other than according to the findings of the judges, or who makes use of misleading advertisement of any nature in any daily, weekly, monthly, or other publications, or in any literature, shall at the discretion of the Chicago Motor Club forfeit his standing in the contest, forfeit whatever prizes or trophies he may have obtained, and be barred from future contests which may be conducted by the Chicago Motor Club, until such suspension has been removed by the board of directors.

Awards

A trophy will be given to the car in division 1 having the least penalization; and a similar trophy to the car in division 2 having the least penalization. A medal will be given to the car in each class of divisions 1 and 2 having the least penalization. A trophy will be given to the make of tires having the least average count, according to paragraph headed "Tire Penalizations."

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JUST A STATEMENT OF FACTS

THE American Automobile Association is the only national body of motorists in this country. The Automobile Club of America was the first motoring club formed in this country. When the clubs of the various European countries first instituted a congress, it was a natural sequence that the A. C. A. should have a voice and speak for this country. Subsequently the American Automobile Association, to meet the needs of the pastime and industry in this country, was organized and to it came the control of racing and touring and other motoring activities of a general scope. Through a combination of circumstances the A. C. A. was continued as the foreign spokesman of the A. A. A. which had a somewhat varied formulative period, but a year or more ago it first gave positive evidence of the real reasons for its existence, thereby unquestionably causing the apprehension and jealousy of the Automobile Club of America, a coterie which has tenaciously hugged the idea that the club was and should be national in its operations. Utilizing a disagreement with the New York State Automobile Association over legislative matters, and therein assuming an absolutely untenable position, the A. C. A. flocked by itself, and recently has been endeavoring to use its "foreign relations" as an asset with which to embarrass and undermine the American Automobile Association. The effort is doomed to failure, absolutely and humiliating, for it is a matter of common sense that the general good of motoring cannot be accepted by an organization which spreads its endeavors throughout the whole country, with local clubs, state bodies, and a cordon of national officers.

Saddled with an enormous debit, liable for fixed annual charges of thousands of dollars, no longer interested in the profitable conduct of motor car shows, the A. C. A. must assure itself of a substantial income from some source or other, and that is why the coterie controlling it desires the overthrow of the A. A. A.—a ridiculous act on the face of it and one which will fail simply because it does not deserve to succeed. Truly it is a pity that the pioneer club of the country should not be satisfied to be a club itself and thus fulfill its proper destiny.

But the handwriting on the wall, now plainly legible, is telling the story, even to those who have been persistently blind and selfishly mistaken in their misdirected efforts to advance the use of the motor-driven vehicle. The Vanderbilt cup race will be a bigger success than ever before, and the puerile efforts of the A. C. A. to interfere with its success will only add to the prestige of the big American event. It is logical, however, that the A. A. A. should figure in the international congresses of the future, and when the foreign clubs comprehend the American situation and realize that it is the A. A. A. which governs in this country, then that body will be asked to speak for America instead of the A. C. A., that no longer will be able to assume a position which now does not belong to it, either logically or morally.

REVIVAL THROUGHOUT WEST

THE dark days of last October, which threatened the financial status of the country from east to west, have given way to brighter skies throughout many sections of the middle west, and during the past month or so business in the motor car industry has been particularly active throughout many of the cities west of the Mississippi. An extended visit recently through sections of Missouri, Kansas, Iowa, Minnesota, Dakotas, Colorado and further west has shown that vast quantities of cars are being moved in many of the cities in these states. The majority of these are cars of the medium-priced class; in fact, not a few dealers assert they can sell trainloads of cars retailing below the $1,500 mark, while those handling high-priced machines vainly search from week to week for buyers. The fact that one city in Kansas alone has a dealer who has sold 197 cars of one make in 2 months is ample proof of the popularity of the medium-priced car for the west.

YOUTHFUL READER OF MOTOR AGE

In northern Minnesota the high-priced car takes better, due to the presence of wealthy lumber merchants with whom a few thousands are of little consequence when it comes to the purchasing of a motor car. An interesting example of this was a Duluth purchaser who was determined not to buy a car selling above the $1,200 mark, but who, on receiving a demonstration on a $4,500 machine, placed an immediate delivery order for it.

These few examples of market conditions in the west naturally provoke the question, "Why is it that these sections are not so seriously affected by the financial flurry as are such population centers as Chicago, New York, Philadelphia, Boston, Buffalo, Pittsburg, Washington and St. Louis, as well as the smaller cities located in the zone of these state metropolises?" The answer is brief. The population in many of the western cities had its money invested in lands and crops, which did not pass into complete oblivion as did the stocks of Wall street. In Minnesota, while the lumber market was affected by the prices, the tangible assets were not impaired, the result being that today these sections are not in that straitened condition and manufacturers of small cars are finding ready market for their output in these virgin territories, while their representatives in eastern cities are not doing half the business they did a year ago.

The lesson for manufacturers to learn is that they must not place all their eggs in a few baskets. Chicago, New York, Boston, Philadelphia, Pittsburg, Washington, St. Louis, Buffalo, Cincinnati, San Francisco and other places are excellent markets during good times, but are poor during hard times, the natural inference being that makers must not lose sight of other vast territories of the country, for if they do, when the financial flurry comes they will find their market ruthlessly impaired. The west and south offer excellent selling markets at the present time. This must not be interpreted as meaning that all cities are in good condition. Far from it. Some of those in Kansas and California are deader financially at the present time than many of the eastern centers, the cause being due to local financial conditions. But in contrast with this are cities of 100,000 or more population where a second-hand car is picked up the moment it is placed on the market, and where many of the crowded store rooms of eastern dealers could be emptied to advantage. These signs simply show the way the wind blows at the present time.

CURRENT COMMENT

THE Glidden route has at last been completed and judging by the reports of the pathfinders the contestants will find themselves in a land that abounds in picturesque scenery and fine roads. Despite the fact that Chairman Hower has cut out the "pleasure" part of the tour, one cannot help feeling that the man who participates in this year's Glidden will have enough variety added to rob the contest of half of its strenuosity. It may be Secretary Lewis and his colleagues have spread it on pretty thick in describing the route selected, but one could believe only half what they say and still be assured of a pleasant journey.

JACOB MURDOCK has established a record that cannot help but attract favorable attention from the buying public. His feat of driving his Packard, carrying seven, from San Francisco and New York in 25½ days of actual running, coupled with the fact that Mr. Murdock owns the car himself and is not connected with the trade in any manner, will convince others of the utility of the motor car. Mr. Murdock did not make a race of it—he simply strove to show the possibilities of the thing and he has succeeded in a most admirable manner. It is to be hoped there will be others go in for long trips of this sort.

SCHEDULE OF COMING EVENTS

Minneapolis Reliability—Two-day reliability run of Minneapolis Automobile Club, Minneapolis, Minn., May 28-29.

Bridgeport Hill-Climb — Hill-climb at Bridgeport, Conn., May 30.

Twelve-Hour Endurance Run—New Jersey Automobile and Motor Club's 12-hour endurance test, May 30.

Boston Track Meet—Meet at Readville track, May 30.

Wilkes-Barre Climb—Annual climb up Giant's Despair at Wilkes-Barre, Pa., May 30.

Denver Endurance Run—Three hundred-mile endurance test for stripped chassis at Denver, May 30.

Omaha Hill-Climb — Omaha Automobile Club's hill-climb, May 30.

International Trials — Royal Automobile Club of England, 2,000 miles international trials, June 1-18.

Straightaway Races—Long Island Automobile Club's straightaway races, June 5.

Dead Horse Hill-Climb—Annual Dead Horse hill-climb of Worcester Automobile Club, of Worcester, Mass., June 6.

Prince Henry Tour—Prince Henry cup tour in Germany, June 9-17.

Chicago Roadability Test—Chicago Automobile Club's roadability test to Gary, Ind., June 13.

Cleveland Hill-Climb—Annual hill-climb of Cleveland Automobile Club, June 13.

Scottish Reliability—Annual Scottish reliability run, June 15-19.

Albany's Annual Run—Annual 5-day tour of Albany Automobile Club, Albany, N. Y., June 20-26.

One Thousand-Mile Reliability—Chicago Motor Club's 1,000-mile, 250 miles a day, reliability run, scheduled for June 24, 25, 26 and 27.

Stock Chassis Race—Two hundred-mile stock chassis race at Lowell, Mass., July 4.

Chicago Hill-Climb—Third annual hill-climb of Chicago Motor Club at Algonquin, August 14.

WALTER WHITE'S accident at Cleveland is a warning that more care should be exercised by the police in keeping crowds off the course, be it in hill-climbing or racing. The reckless curiosity of the average American citizen will lead him to take chances but at the same time it is no reason contestants should be endangered simply that the spectators can "rubber" a little bit closer than is safe. Promoting organizations should give the most careful attention to the policing arrangements and see to it that the spectators stay where they belong. Luckily, Mr. White escaped death, but there is no telling what may happen next time a crowd wanders onto the course. An ounce of prevention is worth a pound of cure any time, remember that.

DECORATION day is upon us again and it's the same old May 30, a day given over largely to the holding of sporting events, only now it is the motor car and not the bicycle that holds the center of the stage. This Decoration day probably will see more motoring events than any of its predecessors, which may be taken as a lively sign of the times and a forerunner of what we will get on every holiday from now until snow flies. Hill-climbs, reliability runs, and even track racing are billed.

GROUP OF MEMBERS OF A. L. A. M. MECHANICAL BRANCH AT CLEVELAND MEETING

While the mechanical branch of the A. L. A. M. was holding its annual meeting in Cleveland last week a photograph was taken, with the above results. Reading from left to right those standing are as follows: E. W. Roberts, Clyde, O.; E. H. Parkhurst, Peerless Motor Car Co., Cleveland, O.: C. J. Kryzanowsky, Olds Motor Works; A. F. Misch, Peerless Motor Car Co., Cleveland; Henry Souther, consulting engineer; George W. Dunhan, Olds Motor Works; John G. Utz, E. R. Thomas Motor Co.; J. G. Sterling, Stearns Motor Car Co., Cleveland; H. B. Anderson, Winton Motor Car Co., Cleveland; C. D. Smith, Winton Motor Carriage Co.; C. F. Clarkson, secretary mechanical branch; W. C. Straub, Peerless Motor Car Co., Cleveland; C. E. Thompson, Electric Welding Products Co., Detroit; the second man beyond Mr. Thompson is C. H. Burman, Peerless Motor Car Co., Cleveland; the second man to Mr. Burman's left is Russell Huff, Packard Motor Car Co., and the third man beyond Mr. Huff is W. H. Starring, Peerless Motor Car Co., Cleveland; W. H. Kirkpatrick, Peerless Motor Car Co., Cleveland. Seated are the following: Second from the end is Frank B. Stearns, F. B. Stearns Co., Cleveland; D. Ferguson, George N. Pierce Co.; Thomas Henderson, Winton Motor Car Co., Cleveland; A. L. Riker, Locomobile Company of America; E. P. Chalfant, assistant general manager of the A. L. A. M.

CARS MAKE GOOD SHOWING IN HOOSIER TEST

START OF INDIANAPOLIS RELIABILITY AND A CONTROL AT NEWCASTLE, IND.

INDIANAPOLIS, IND., May 21—The first reliability run or sealed bonnet contest ever held in Indiana was run yesterday by members of the Indianapolis Automobile Trade Association, covering a course of approximately 150 miles through central Indiana. Out of thirty-seven starters, nineteen finished with perfect scores. Ten out of the fifteen cars in class A, which was for machines listing over $2,500, were perfect; five out of the six in class B, $1,500-$2,500, went clean, and four out of sixteen in class C, under $1,500, escaped penalty. Those with perfect scores were as follows: Marmon, three; National, two; Premier, two; Maxwell, two; White, Haynes, Buick, Rambler, Rapid, Lambert, Marion, Mitchell, Overland and Reo, one each, certainly a good showing.

Some of the worst hills in Indiana were encountered and there were long stretches of dirt road and in several places the heavier cars sunk almost hub-deep in them. The day, however, was perfect for such a contest. On Monday and Tuesday rains eliminated the dust and on Wednesday the highways were just damp enough to keep dust from flying. There was just a trace of wind and the sun shone brightly throughout the run. Tuesday afternoon the contesting cars were turned over to the technical committee for examination and sealing and they remained, parked on the Meridian street side of University park, during the night. Owners or drivers were not permitted to touch their cars after turning them over to the committee.

Promptly at 7 o'clock W. C. Marmon, driving a Marmon, crossed the tape as the first to start on the long run. Then the cars began leaving 1 minute apart with 10 minutes between classes. Every car left on time to the second. Leaving Indianapolis the cars went north through Crow's Nest to the road leading to Westfield, thence to Noblesville and Anderson, the latter city being the first checking station. From there the route led east to Muncie, thence to Newcastle and from there to Indianapolis through Dunreith, Knightstown and Greenfield, the last 40 miles being over the national road.

The friendly feeling of farmers and residents of small villages and towns toward the contestants was especially noticeable. Many of the cars broke the speed limits despite the fact that the schedule called for from 14 to 18 miles an hour, according to classes, but none of the drivers was molested. Farmers unhesitatingly pulled to the side of the road to let the cars pass and in the small towns the citizens turned out en masse to cheer the contestants. At Anderson, while the cars were waiting to check in, the Buckeye Mfg. Co., which makes the Lambert, gave the occupants of each car box lunches containing fried chicken, olives, fruit, sandwiches, a bottle of milk and a cigar. At Newcastle the Maxwell-Briscoe Motor Co. gave the occupants of the cars roses, for which the city is famous.

Some of the worst stretches of road were encountered between Anderson and Muncie and between the latter city and Newcastle. The route from Newcastle to Indianapolis was fairly good.

The technical committee drew the line very closely, almost splitting hairs, in the final examination of the cars, yet despite this fact there was not a single protest from its decisions. A penalty of 25 points was incurred for each broken seal, with a penalty of 2 points for each minute spent in working on the car. Additional penalties were incurred for loose and broken parts found at the conclusion of the run. One of the air-cooled Marmons had a bit of bad luck due to an overheated engine, which caused the car to arrive at the first checking station 12½ minutes behind its schedule. The Cartercar, driven by C. C. Himes, was forced through a fence by a car trying to pass it and Himes lost 10 minutes straightening a tie rod and arrived in Indianapolis with his motor pounding and steering parts bent. Benefield, the driver of the Buick in class C, had some trouble with his motor and spent 33 minutes in working on it. R. H. Hassler, who drove a Hassler runabout, which he has just brought out, was compelled to break a seal to get to his carbureter for 1 minutes' work.

Undoubtedly the worst hard luck came to Joe Newby, driving the Maxwell in class B. When within 6 miles of Indianapolis after making a perfect score to that point, the engine suddenly "died" and Newby coasted the car under a big tree. He diagnosed it as ignition trouble and had to break a seal. It cost him 121 points and 38 minutes' work.

Without doubt the most interesting feature of the run was the perfect score made by a twelve-passenger Rapid bus, entered by the Indianapolis Motor Car Co. and driven by Frank Grogan, an 18-year-old boy. The car left Indianapolis in class B carrying representatives of the press. There were twelve persons on the car, weighing more than a ton, besides a number of heavy cameras and numerous eatables and drinkables. The car was equipped with Firestone solid tires. When near Noblesville one of the tire chains slipped off, but Grogan stopped so quickly there was no penalty. During the run the car consumed 11¾ gallons of gasoline and 1 gallon of lubricating oil. The car was scheduled to run approximately 16 miles an hour, but it ran from 20 to 30 miles an hour most of the way, arriving at Anderson 20 minutes ahead of time, at Newcastle 25 minutes ahead of time and at Indianapolis 37 minutes ahead of time.

TWENTY IN NORTHWEST RUN

Minneapolis, Minn., May 27—Special telegram—Twenty cars are garaged in the new armory ready for the 350-mile 2-day reliability contest of the Minneapolis Automobile Club tomorrow and Friday. Owing to the continuous rains of the last few days the course by way of Faribault, Mankato, St. Peter and Jordan has been abandoned, and the run of both days will

be over the route to Anoka, Elk River, St. Cloud, Cold Springs and return, the run of each day being approximately 170 miles. It was hoped up to the last minute of closing the entries that twenty-two cars would be competing, but the excessive rains frightened not a few, and even a couple of the twenty are doubtful. The roads are practically all sand and can be negotiated even if rain falls all day. The contesting cars are two each of the Pierce-Arrow, Ford runabouts, Stoddard-Dayton and Thomas and one each of the Rambler, Kisselkar, Mason, Franklin, Welch, Moon, Cartercar, Overland and Pope-Hartford. The biggest entry of one make is composed of three Oldsmobiles. The only private owner entered is Herbert Clark, with his Pope-Hartford runabout. The novelty in connection with the contest is that gasoline and oil consumption will both be factors in determining the winner, the consumption of these being based on a ton-mileage system. Asa Payne, second vice-president of the American Automobile Association, will be referee.

TRACK STARS FOR READVILLE

Boston, Mass., May 25.—The annual race meet of the Bay State A. A. on Saturday promises to be a big success if the weather holds good. The race committee has been hustling to get good attractions and it has succeeded better than was expected, considering all the other meets that are scheduled for the holiday. Barney Oldfield, Walter Christie, Fred Marriott, Charles Basle, M. J. Seymour, Stewart Elliot, Joe Downey and Walter Owens are some of the men who will participate in the meet.

ENGINEERS TALK SHOP

Interesting Session of Mechanical Branch of the A. L. A. M. is Held in City of Cleveland

Cleveland, O., May 25—Thorough inspection of three of this city's largest motor car factories—the Stearns, Peerless and Winton—marked the meeting of the mechanical branch of the A. L. A. M. in this city last Friday. The mechanical branch is constituted of the engineers and factory superintendents of the members of the licensed association.

Among the important things discussed at the business meeting was the dynamometer of the Automobile Club of America, an elaborate apparatus installed for testing cars at the home of the club in New York city. The workings of this testing machine had been recently examined by the committee on tests of the mechanical branch, and a copy of the report with recommendations made by it was read. The chairman of the technical committee of the A. C. A. was present and expressed the gratification of the club as to the action of the licensed association in examining and suggesting points in connection with the testing apparatus. E. W. Roberts, of Clyde, O., an authority on the subject, gave an interesting address on two-cycle motors, on which free discussion was had. C. E. Thompson, of the Electric Welding Products Co., read a paper on combination valves for four-cycle motors; that is, valves in which nickel steel heads are welded to carbon steel stems. The new principle brought out by the representative of this company was the fact that they recognize the possibility of metal being injured by high temperatures used for welding, and to overcome such injury, resort to heat-treatment after welding.

The afternoon was given over to careful inspection of three of the local factories. In each the testing room came in for probably the largest share of atention, the engineers apparently being very much interested in the various methods in use. Another thing which attracted considerable comment and discussion was the ball-bearing motor used by the Stearns people. This is the only car in this city, and one of the few in this country, using this type of engine, and the engineers present evinced a great deal of interest, examining its construction closely.

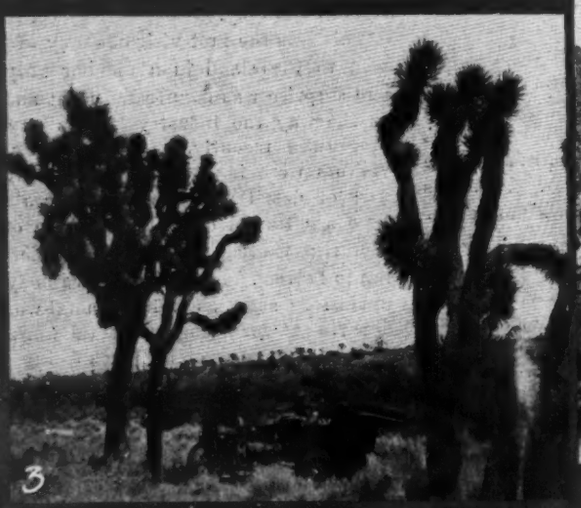
This was the first visit of many of these men to Cleveland in a number of years, and surprise was manifested right and left at the way the industry in this city had progressed recently. Above all else, the visitors were impressed by the thoroughness of detail with which the cars made here are turned out. In all three of the factories visited, the cars are made from top to bottom. Each has its own body and upholstery shop, as well as metal-working department for doing incidental work.

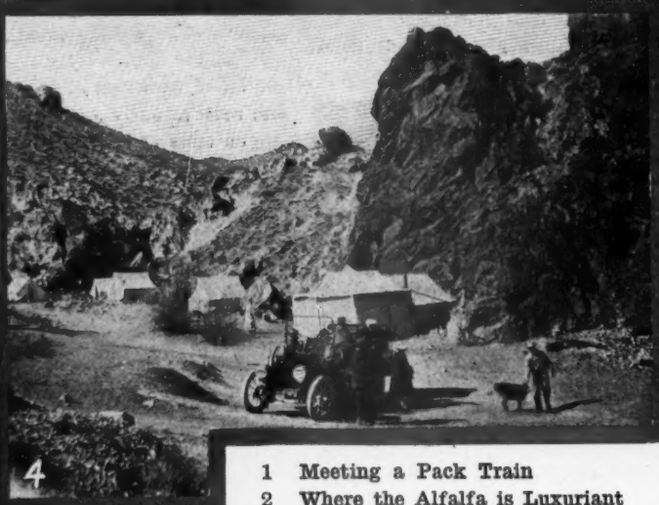
The large commercial truck being made by the Winton company received its share of attention, and many of the men expressed themselves as being greatly in favor of its construction. It has a four-cylinder motor of ample horsepower and is fitted with shaft drive.

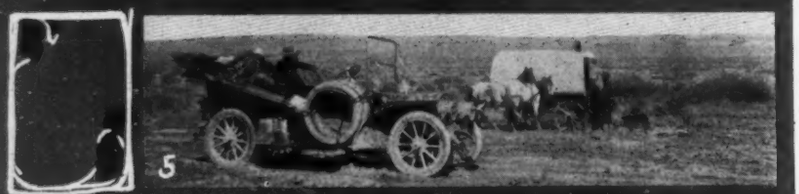
TABULATED REPORT OF RESULTS IN INDIANAPOLIS RELIABILITY RUN LAST WEEK

No.	Name of car	Model	Entrant	Driver	Examination	Broken Seals	Time	Final
CLASS A—FOR CARS LISTED ABOVE $2,500								
50	Marmon	H	Nordyke & Marmon Co.	W. C. Marmon		..		Perfect
51	Marmon	H	Nordyke & Marmon Co.	H. G. Shaffer		..		Perfect
52	Marmon	G	Nordyke & Marmon Co.	William Clark		..		Perfect
53	Marmon	G	Nordyke & Marmon Co.	Richard Wiley		1	12½ min	50
54	National	N	Fisher Auto Co	J. Aiken	Work on brake	..	10 min	25
55	National	R	Fisher Auto Co	T. Kincaid		..		Perfect
56	National	N	Fisher Auto Co	W. F. Strofe		1		25
57	National	R	Fisher Auto Co	Harry Moore		..		Perfect
58	Premier	30	Premier Motor Mfg. Co.	C. Waltman		..		Perfect
59	Premier	30	Premier Motor Mfg. Co.	H. Hammond		..		Perfect
60	Premier	30	Premier Motor Mfg. Co.	N. Motsinger	Footbrake	..		20
61	Premier	30	Premier Motor Mfg. Co.	W. T. Brown		..		Perfect
62	White	L	H. T. Hearsey Vehicle Co.	J. W. Bell		..		Perfect
63	Haynes		W. W. Reagan	L. Wagoner		..		Perfect
64	Buick		Buick-Losey Co.	W. B. Peterson		..		Perfect
CLASS B—FOR CARS LISTED FROM $1,500 TO $2,500								
66	Maxwell	D	Fisher Auto Co	M. Haywood		..		Perfect
67	Maxwell	D	Fisher Auto Co	J. A. Newby	Handbrake	1	Work on ignition	121
68	Rambler	34a	H. T. Hearsey Vehicle Co.	E. Collier		..		Perfect
69	Rapid	P*	Indlps. Motor Car Co.	Frank Grogan		..		Perfect
71	Lambert		Sullivan Auto Co	Ray Lewis		..		Perfect
72	Marion		Gibson Auto Co.	T. C. Vawter		..		Perfect
CLASS C—FOR CARS LISTED UNDER $1,500								
76	Maxwell	LC	Fisher Auto Co	Donald Herr		2		84
77	Mitchell	H	Fisher Auto Co	Bert Corbett		..		Perfect
78	Maxwell	HC	Fisher Auto Co	C. W. Kelsey	Bent front axle	..		50
79	Maxwell	LC	Fisher Auto Co	O. Gronendyke		..		Perfect
80	Overland	24	H. T. Hearsey Vehicle Co.	C. Brockway		..		Perfect
81	Overland	24	H. T. Hearsey Vehicle Co.	C. Baumhofer	Gasoline tank leaked	..		10
82	Auburn		Finch & Freeman	W. W. Beeson	Bad water leak	..		10
83	Richmond		Finch & Freeman	T. K. McCune	Bolt lost handbrake	..		25
84	Hassler		R. H. Hassler	R. H. Hassler		1	Work on carbureter 1 min.	27
85	Reo		Gibson Auto Co.	B. W. Twyman		..		Perfect
86	Cartercar		Minneapolis Auto Co.	C. C. Himes		1	Straightening tie rod; steering connection bent	50
89	Cartercar		Minneapolis Auto Co.	W. A. Carr	Axle bent	..		50
90	Cadillac		Cadillac Auto Co.	G. H. Graves	Broken fender iron and tail lamp	..		12
91	Lambert		Sullivan Auto Co.	H. Stodgell	Rear axle bent; loose fender	..		52
92	Buick		Buick-Losey Co.	C. Benefield		..	33 min. work on engine	66
93	Leader		E. B. Martindale	T. M. Martindale	Water leak; lamp broken	..		15

*Pullman.



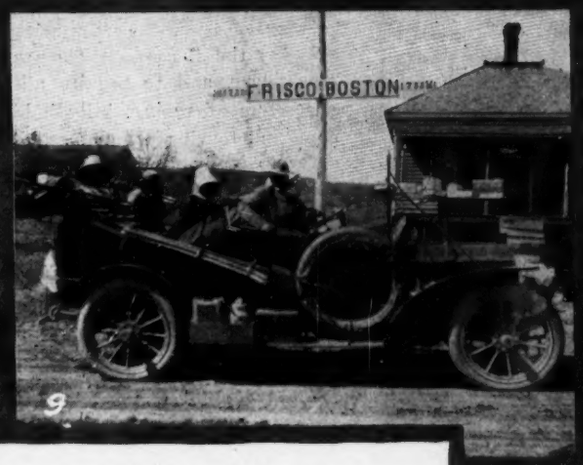




1 **Meeting a Pack Train**
2 **Where the Alfalfa is Luxuriant**
3 **Cactus Growth Seen in Nevada**
4 **Typical Mining Camp in West**
5 **Old and New Way of Traveling**
6 **Packard Crossing a Rocky Ford**

Transcontinental Record

NEW YORK, May 27—Special telegram—Jacob M. Murdock, of Johnstown, Pa., ended at New York at 2:07 o'clock on Tuesday afternoon a Pacific-to-Atlantic run of 3,674 miles, having covered in a Packard car the distance in 25½ days of actual running, or to be exact in 32 days 5 hours 25 minutes gross between the times of start and finish. Mr. Murdock thereby set up a new Pacific-to-Atlantic figures for a car operated by a single crew, though not, of course, equaling the record of 15 days 2 hours 10 minutes accomplished by the Franklin six-cylinder with shifts of drivers. These figures, however, convey most inadequately the value of the present performance, which can truly be said, all circumstances and conditions considered, to have been the most remarkable and convincing demonstration of the touring practicability of the motor car that has yet been given. Mr. Murdock,



7 **Sample of the Colorado Roads**
8 **Rough Going in Nevada**
9 **Murdock and His Party**
10 **Pitcuresque Colorado Scenery**
11 **Welcome Well in West**
12 **Dreary Stretches in Nevada**

Made by Amateur Driver

an out-and-out amateur owner, drove the entire distance himself. He carried in his car a full complement of seven passengers, comprising his wife, three children, a guest, and a mechanic. He drove solely by day, rested on the 5 Sundays of the journey and lay over 2 days besides, one on account of rain and the other for recreation at his own residential town. In a word Mr. Murdock's was an out-and-out touring run and in no sense a race for a record. His average mileage per running day was 146.36 miles. His longest day's run was 244 miles between Pittsburg and Philadelphia, and his best western mileage 241 miles, between Cheyenne and North Platte, which was followed by a 235-mile run the following day to Columbus, Nev. The total weight of the Packard, including equipment, fuel and passengers carried as far as Ogden was 5,500 pounds. The wheels were equipped with Continental tires.

A. A. A. STANDS BY ITS CUP RULES

Big Organization's Racing Board Unanimously Decides Not to Alter Regulations for Vanderbilt Contest—Tells Foreigners A. C. A. Is Without National Functions

New York, May 27—Special telegram—The Vanderbilt cup race for 1908 will be conducted under the rules made known weeks ago. The recent so-called protests of two foreign clubs, one of which has never supplied an entrant for the race, were utterly disregarded at the largely-attended meeting of the racing board held Tuesday at A. A. A. headquarters. These protests, transmitted through a club which is no longer connected with the national association, were considered entirely out of order under the existing circumstances. The A. A. A. is the governing body of motoring activities in this country, including racing, and the fact having been plainly established that it was in no wise holding to the so-called international rules for 1908, it seemed a most logical deduction that Americans could decide as to the conditions under which their big annual race contest should be held.

There was no question concerning the unanimity of the proposition at the meeting which was attended by the following: Jefferson DeMont Thompson, chairman, who presided; William K. Vanderbilt, Jr., donor of cup; A. R. Pardington, ex-chairman of the racing board; Thomas Henderson, president of the National Association of Automobile Manufacturers; Percy Owen, chairman of the contest and races committee of the Importers' Automobile Salon, and these additional members of the board: Frank G. Webb, Long Island Automobile Club; R. L. Lippitt, Rhode Island Automobile Club; Harry W. Knights, Bay State Automobile Association; H. A. Bonnell, New Jersey Automobile and Motor Club; E. R. Thomas, Automobile Club of Buffalo; C. J. Swain, Quaker City Motor Club, Philadelphia; Rossiter Worthington, A. G. Batchelder, H. T. Clinton, New York city; Mayor George W. Tiedemann, Savannah, Ga., holding the proxy of Frank C. Battey, the president of the Savannah club, and Secretary F. H. Elliott. President W. H. Hotchkiss also was in attendance at the session and Mr. Henderson, besides representing the N. A. A. M., also was authorized by proxy to represent Benjamin Briscoe, the representative of the American Motor Car Manufacturers' Association on the A. A. A. racing board.

The meeting was much the largest ever held by the racing board. All action taken was unanimous. Chairman Thompson brought to the attention of the board certain protests said to have been by the Automobile Club of France and the Royal Automobile Club of England against the rules for the Vanderbilt cup race for the year 1908 and at the request of Mr. Vanderbilt attention was called to a letter written by him to Chairman Thompson, from which the following is quoted: "The stand taken by the French club is most unreasonable, seeing that for the past 3 years they have not recognized the Vanderbilt cup and their letter to this effect introduced at this time, would, I think, be a reminder to them that they have refused to participate in this event for reasons known only to themselves. At the same time, the association never was asked to send its report to the Ostend meeting held July 15, 1907, and the minutes of the meetings of the A. A. A. do not refer to any power having been vested in the Automobile Club of America to accept on behalf of the A. A. A. any resolutions adopted at this conference.

"I also wish to bring to your notice the fact that when I presented the cup to the American Automobile Association it was with the intention of giving the American motor car manufacturers a chance of competing against foreign cars in a race to be held in this country, a contest much needed here and one that I thought would tend to raise the standard of American cars. I believe it is the universal opinion of those interested in the sport that the above stated facts have been achieved. It is now in my opinion the time for us to notify the French club of these facts, and receive proper recognition by them."

After a full discussion of the so-called protests, the following resolution was offered by Mr. Vanderbilt, seconded by Mr. Graves, and unanimously adopted:

Resolved, That Jefferson DeMont Thompson the chairman of this board and of the Vanderbilt cup commission, be instructed to notify the corresponding boards or committees of the representative automobile associations and clubs of foreign countries that the Automobile Club of America is a local club situated in the city of New York, without national functions or jurisdiction, and that all communications concerning national or international affairs must be addressed to the American Automobile Association at its headquarters, 437 Fifth avenue, New York city, or to the chairmen of its respective boards; and that so far as the rules of the Vanderbilt cup race for 1908 are concerned, on receiving a communication direct from any foreign association or club concerning such rules, this board will give such communication prompt and courteous consideration.

Chairman Thompson then called upon President Hotchkiss to address the board on certain matters of national and international policy and after a full discussion the following resolution offered by Mr. Thomas and seconded by Mr. Vanderbilt, who stated that he cordially supported the policy of the association in preventing outlaw contests was unanimously adopted:

Resolved, That the chairman of this board be directed to notify all foreign and American clubs and associations, as well as all foreign and American manufacturers, that the American Automobile Association, the national governing body in the United States, will hereafter annually sanction but three national or international events, namely, the Vanderbilt cup race for racing cars, the annual touring contest for the Glidden and other trophies and the J. DeMont Thompson cup contest for stock cars, and that in accordance with an understanding between the American Automobile Association, the National Association of Automobile Manufacturers, the American Motor Car Manufacturers' Association as represented in a central conference committee of the three bodies, the American Automobile Association will enforce the sanctioning privilege thus committed to it by disqualifying from further contests under its sanction all manufacturers, both foreign and American, and all drivers whatsoever nationally participating in any race or contest for which a sanction shall be refused or after notice withheld, That the above resolution is not intended to affect local events and those not national or international in their character except that sanctions must be applied therefor to the American Automobile Association.

The effect of this resolution will be to limit national or international contests in the United States to three great events—that for the William K. Vanderbilt, Jr., cup for racing cars, that for the Glidden and other trophies for touring cars and that for the J. DeMont Thompson cup for stock cars, and to require all clubs and promoters of racing, hill-climbing, endurance and touring contests of a local character to apply for sanctions to the American Automobile Association. Outlaw contests will be penalized by disqualifying entrants and their drivers from all future contests sanctioned by the A. A. A. This action is taken in accordance with the agreement between the American Automobile Association and the manufacturing bodies mentioned, and is intended not only to put racing and other contests absolutely in the hands of the American Automobile Association but to keep the number of motor contests within proper bounds.

Chairman Thompson and Messrs. Vanderbilt and Pardington reiterated the statement made at the meeting of the racing board held in April that there would be a Vanderbilt cup race this year, and that prior to July 1 the course and the day of the race would be announced. Upon motion of Mr. Riker, seconded by Mr. Thomas, Chairman Thompson was authorized to name a committee to prepare the entry blanks for the Vanderbilt cup race for the year 1908 to the end that the same might be published and distributed as soon as possible after June 1. F. G. Webb, Percy Owen and A. L. Riker were named on this committee and immediately went to work on the publication of the entry blanks. Chairman Thompson read a letter from President Frank C. Battey, of the Savannah Automobile Club, which stated in substance that the club had been approached by the secretary of the Automobile Club of America, but that the club had done nothing with regard to running the kind of a race proposed.

The meeting was most enthusiastic and the action taken thereat assures to the A. A. A. absolute control of all races and contests in the United States not only through its membership of twenty-four affiliated state associations, comprising more than 180 clubs with a membership upward

of 20,000 individuals, but by reason of its close association with the manufacturers of the country.

Chairman Thompson has anonunced the appointment of Robert Graves and Harry T. Clinton as members of the board. Mr. Graves is a pioneer American motorist, having entered cars in two of the Vanderbilt cup races. Mr. Clinton is manager of the publicity department of the Association of Licensed Automobile Manufacturers. He attended Tuesday's meeting.

CHICAGO AFTER SHOW BUILDING

Chicago, May 25—Alfred Reeves, general manager of the American Motor Car Manufacturers' Association, who now is making a visit to the majority of the factories whose output is represented in his organization, is expected in Chicago shortly to discuss with the two local clubs a suitable location for the show which the independents will hold in Chicago next winter. Manager Reeves has written the Chicago Automobile Club regarding the two locations offered by that club, declaring that the Dexter park pavilion at the stock yards does not come up to the mark so far as location is concerned, although it has more than enough floor space. The other building, the Seventh regiment armory now in course of construction at Wentworth avenue and Thirty-third street, is admirably situated but the floor space is insufficient. It is cut up into two floors and the first floor would not begin to accommodate the manufacturers of motor cars. It is probable Reeves may change his mind when he views the Dexter park pavilion. In it are held the annual stock shows and the affairs draw out greater crowds even than the Coliseum, while by next winter there will be a spur of the elevated which will take the people there from downtown in a very short time.

PARKWAY ASSUMES SHAPE

New York, May 25—Officers and directors of the Long Island motor parkway have started on the job of building the highway. On Monday, the 11th inst., the work of construction was organized and the chief engineer was instructed to at once begin the work, for which plans have been in preparation and completed for some time. A right of way has been secured from the villages of Mineola, Garden City and Hempstead, the western terminal to Lake Ronkonkoma, extending over a distance of 35 miles. Throughout the entire length the right of way is 100 feet wide, and in many instances 200 feet. The formal ceremony of "turning the first spadeful" of earth by the president of the company, William K. Vanderbilt, Jr., will take place on Saturday afternoon, June 6, at 3:30 o'clock, near Central park. In case of inclemency of weather there will be a postponement of 1 week. The exact location is the Barnes tract, at the intersection of the central branch of the Long Island railroad with a road known as Jerusalem road.

MAXIM MAKES REPORT

Hartford Referee Settles Reliability Protests—Reasons For the Penalizations

Chicago, May 23—The official report of H. P. Maxim, referee of the recent reliability and fuel contest of the Automobile Club of Hartford, of Hartford, Conn., was received here today by the secretary of the technical board of the American Automobile Association in which the results of the protests filed are announced. Also accompanying these statements was a summary of the scores of the cars in which is explained the reasons for the penalizations.

Two protests were received by Referee Maxim, both from the Capitol City Auto and Hack Co., entrant of the Mitchell, which objected to the manner in which the gasoline tank of the Mitchell was filled, Referee Maxim explains this by stating that when the tank was filled at the noon control the driver of the Mitchell stated it would take 5 gallons, so a can of that capacity was used. The tank would not hold the full amount and some of the fuel overflowed, whereupon Henry Souther, who was officiating, estimated the waste at 1 pint, making due allowance on the ticket. This second filling made the Mitchell's total 9 gallons 3 quarts whereas the Ford, which was given the decision in this class, used 9 gallons 2 quarts 1 pint. Referee Maxim states that "the decision was based on Mr. Souther's record and judgment backed up as to the amount spilled by the judgment of a member of the committee present experienced in such matters and who witnessed the filling." The Mitchell people also protested the Ford because the entry fee was not paid until after one lap of the contest had been completed, whereas the rules called for the fee accompanying the entry. This was dismissed by the referee when it was learned that the Ford entry had been accepted on the promise of the entrant to forward the fee within a few days, his credit being considered good by the committee. The fact that the Ford was allowed to start is blamed upon the committee rather than the entrant. The referee quotes a precedent for making this ruling.

Referee Maxim's report on the condition of the cars and the reasons for the penalizations was as follows:

No. 1, Franklin—Changing tire at Hartford control.
No. 2, Corbin—Carbureter and engine trouble.
No. 3, Corbin—No penalty; perfect score.
No. 4, Ford—Stalled motor.
No. 5, Stevens-Duryea—No penalty; perfect score.
No. 6, Reo—Babbit burned out; broken connecting rod.
No. 7, Stoddard-Dayton—Stalled engine; commutator trouble; tire trouble.
No. 8, Rambler—No penalty; perfect score.
No. 9, Ford—Did not start.
No. 10, Rambler—Car backed down hill changing gears.
No. 11, Rambler—No penalty; perfect score.
No. 12, Knox—Stalled motor; tire troubles.
No. 13, Buick—Engine trouble; faulty spark plug.
No. 14, Compound—Gear shaft bent.
No. 15, Stoddard-Dayton—No penalty; perfect score.
No. 16, Thomas Flyer—Motor stalled.
No. 17, Overland—Engine, radiator and tire troubles.
No. 18—Thomas Flyer—Stalled engine; carbureter trouble.
No. 19, Stevens-Duryea—No penalty; perfect score.
No. 20, White—Disqualified; ahead of schedule time.
No. 21, Ford—No penalty; perfect score.
No. 22, Mitchell—No penalty; perfect score.
No. 23, Rambler—Tire trouble.
No. 24, White—Stopped to take on water.
No. 25, Pope-Hartford—Engine and tire troubles.
No. 26, Cadillac—Engine and tire troubles.
No. 27, Peerless—Engine and tire troubles.
No. 28, Oldsmobile—Tire trouble.
No. 29, Pope-Hartford—Stalled motor.
No. 30, Ford—Did not start.
No. 31, Corbin—Withdrawn.
No. 32, Knox—Motor stalled; adjusted spark plug.
No. 33, Corbin—No penalty; perfect score.
No. 34, Columbia—Ignition trouble.
No. 35, Thomas-Detroit—No penalty; perfect score.
No. 36, Packard—No penalty; perfect score.
No. 37, Cadillac—Ignition trouble.
No. 38, Pierce-Arrow—No penalty; perfect score.
No. 39, Maxwell—No penalty; perfect score.
No. 40, Thomas Flyer—No penalty; perfect score.
No. 41, Atlas—Tire trouble.
No. 42, Knox—No penalty; perfect score.
No. 43, Columbia—Leaking radiator connection.
No. 44, Mitchell—Carbureter trouble.
No. 45, Stoddard-Dayton—Did not start.
No. 46, Maxwell—No penalty; perfect score.
No. 47, Maxwell—No penalty; perfect score.
No. 48, Locomobile—Tire trouble.
No. 49, Buick—No penalty; perfect score.
No. 50, Oldsmobile—Tire trouble.

KANSAS CITY REVISES SCORES

Kansas City, Mo., May 23—The final report of the touring committee, after a consideration of all protests, leaves only fifteen perfect scores in the run of May 16. S. B. Bell's Franklin was penalized on charges that the motor was cranked during the run. M. C. Albertson's Royal Tourist was set back 10 points for time lost at controls. Contrary to first expectations, it is likely that the tie will be run off as a sealed bonnet contest over a route of about 200 miles. It is planned to use the same course as that of May 16, except that it will be lengthened about 50 miles. There is to be a technical inspection at start and finish and every part of the mechanism is to be sealed. It is planned to choose observers from the mechanical forces of the various garages and then put them on rival cars. Charges have been made since the run that the observers were, in many cases, actuated by friendly motives and did not make reports on some of the things.

NOW HEADED FOR PARIS

Chicago, May 26—The last leg of the New York-Paris race is on, the Thomas and the Protos, the only survivors, leaving Vladivostok last Friday, both drivers being given papers by the military governor general which instructed the Cossacks and village authorities to give every assistance possible. The weather was threatening and the roads muddy. After 2 days of mud-plugging the Thomas reached Nikolsk, Russia, a distance of 100 miles. The Thomas left Nikolsk, but after going 15 miles was forced to return to that town because of an impassable swamp. The Protos took to the sleepers of the Trans-Siberian railroad. A dispatch from Nikolsk Monday says the Protos is now in the lead.

HISTORY AND CONSTRUCTION OF CLUTCHES

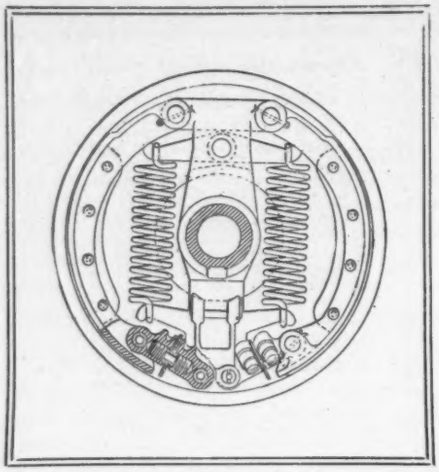


FIG. 30

EDITOR'S NOTE—Paper read before the American Society of Mechanical Engineers at New York, May 12, by Henry Souther. Discussion to be continued at Detroit, June 25-28, in conjunction with the Society of Automobile Engineers. Part III. Part I and 2 have appeared.

Contracting Band Clutches

THE exponents of the contracting band type of clutch are few and far between, unless the contracting spiral be so classed, and perhaps it ought to be. Figures 32 and 33 show a contracting band characteristic of one of the French Mors. A leather-lined flexible steel band, 8, contracts against a steel cylindrical band, 2, bolted onto the flywheel, 1. Clutches of this character are seldom found in the motor car industry, except in two-speed cars.

About 1897, a single-cylinder 10-horsepower car was equipped with such a clutch as shown in figure 33, a leather-lined band, very flexible in character, wrapping around the hub of a flywheel and tightened with a spring pressure of about 50 pounds against a wedge. In this clutch a weight was furnished which would throw out at high speeds and further tend to tighten the band about the hub of the flywheel. The fact that this clutch has not had any successors is an indication that it could not compete with other forms; nevertheless, it was a successful clutch, especially for its time.

Figure 31 shows a form of clutch that has had prominent adherents. It is the wrapping spiral spring, of either hard or soft metal. The cut indicates the spring in cross section, marked 6, wrapping on the drum 4. Probably the greatest enemy to this clutch has been the adjustment of the clutching force. With too little lubrication these clutches grip too savagely. With too much lubrication they will not pick up their load rapidly enough. The margin is narrow and hard to control. With a viscous lubricant there is enough drag to make the gears clash badly. The disengagement is not very complete at the best.

Multiple-Disk Clutches

The single disk clutch is widely used, both here and abroad. It is so characteristic of a French make as to travel under the name of the firm—the de Dion. It is now used in this country by one firm for horsepower ranging from 70 to 20, for pleasure and for commercial service. The clutch has a disk A, figure 35, on the driven member, B, which is clamped between two disks, C, on the driving member or flywheel. In figure 35 this arrangement is clearly shown. There are the necessary accompaniments of separating springs, so as to make disengagement perfect, also either single or multiple springs to cause the proper engagement.

Figure 30 shows the same kind of a clutch in a slightly different form. The springs in this case are on the front side of the flywheel rather than on the rear, as in figure 35. Cork inserts are being used in this clutch to considerable advantage. Another form is the now popular multi-disk clutch; that is, the elaboration of the Weston clutch, to which I have already referred. This clutch is indicated clearly by figure 37, the alternate plates of bronze and steel attached to driving and driven parts being pressed together by a powerful spring, 5. The question of lubrication here is the all-controlling one, and, in fact, it would seem that the principal problem in connection with the multi-disk clutch as a type is the proper lubrication of it.

I have ridden in cars equipped with such clutches that were extremely savage in taking hold. I have ridden in others of the same make that were extremely slow to take hold. In a way, this may be a good thing. For example, a person going into a hill-climbing contest or race and wishing to pick up quickly would be perfectly willing to put up with a harsh clutch and lubricate accordingly. On the other hand, a car running about a level city, encountering few bad hills, would be able to lubricate excessively and still have a satisfactorily-driven motor car. A clutch so lubricated would be extremely soft, and yet pick the car up fast enough for ordinary purposes on level roads.

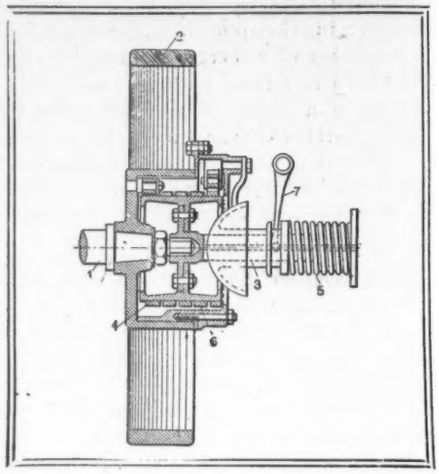


FIG. 31

Cold and heat affect the operation of this clutch, the lubricant in summer being thicker than can be permitted in winter. As it runs in oil it takes a certain length of time for the oil to squeeze out when engaged and for the metal to come in contact with metal and really begin to drive the car. It will be seen from this that the viscosity of the lubricant is of prime importance. One form of multiple disk clutch in use in a very high grade car consists of steel disks rubbing against a special bronze rolled into sheets. The steel disks are provided with several small tongues on the outer periphery, bent one side sufficiently to come in contact with the next steel disk, for the purpose of separating the disks and overcoming the drag when the clutch is disengaged. A small clutch

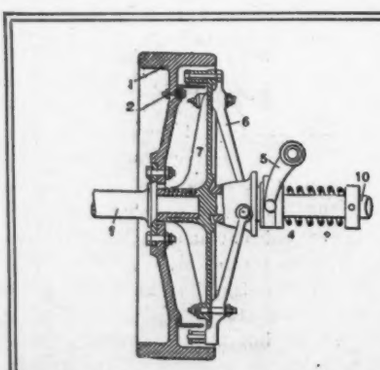


FIG. 32

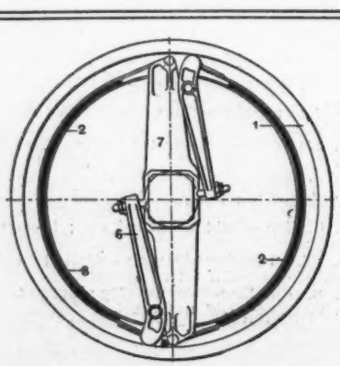


FIG. 33

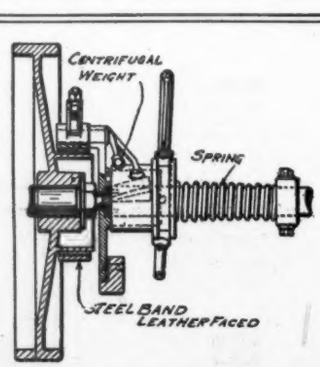


FIG. 34

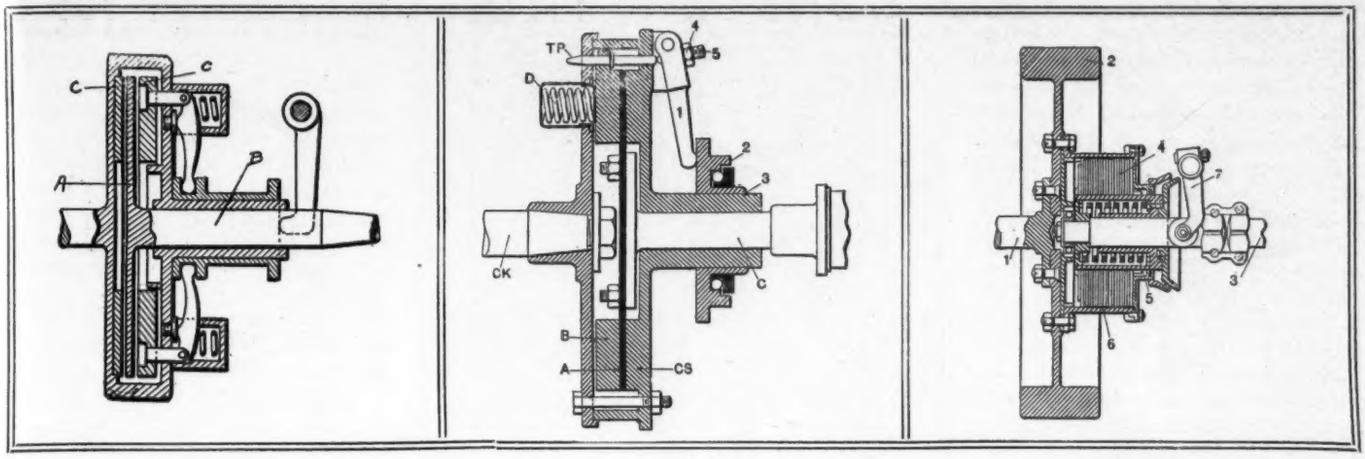


FIG. 35 FIG. 36 FIG. 37

brake is also provided to overcome clutch inertia or drag inherent in the clutch and due to viscosity of lubricant. The steel disks are put into the clutch as received from the rolling mill, with the hard black finish characteristic of carefully finished crucible sheet steel.

This clutch is connected with the crankcase so that oil feeds into it from the crankcase through a hole drilled in the center of the crankshaft. Entire reliance, however, is not placed on this supply, a little extra oil being supplied every 2 or 3 days through holes provided for that purpose. Figure 38 shows a nest of disks such as used in a well-known multi-disk clutch. The U-shaped separating springs are plainly visible. These force like disks apart when the spring pressure is released, overcoming the natural tendency of the oil to cause them to adhere. Some disk clutches are forced apart in a similar manner by little spring-shaped strips struck up from the disks themselves. Another form of this same type of clutch is shown in figure 39. Comparatively few disks are used as will be noted. On the other hand, it is apparent that the spring pressure is very heavy. This is a successful and well-behaving clutch used on a popular car at the present time. It drags but little when the gears are changed and is satisfactory in that respect.

A type of disk clutch consisting of all steel disks with alternate ones faced with leather was operated without any oil whatsoever, the leather being softened and made more or less pliable like the leather on the simple cone clutch. These clutches gave some trouble by burning up, the slip required to start smoothly being also sufficient to create enough heat to destroy the leather. This clutch was, however, extremely efficient in the transmission of power. For example, the one shown in figure 41, the disks of which are about 7 inches in diameter, was powerful enough to drive a motor car of 50 horsepower.

It must be remembered that the motor car engine runs at high speed, say, 1,000 to 1,200 revolutions per minute, when developing anywhere near its normal rating. Some motors, in fact, running up as high as 1,500 to 1,800 revolutions per minute—standard rating is at 1,000 feet per minute piston speed. It is a fact that in service cars with disk clutches of this character vary more or less in the way their clutches behave. Clutches receive very much less attention than they ought, like everything else on the motor car. I think it will be admitted, even by the adherents of this form of clutch, that it ought to receive more attention than the leather-faced cone. Nevertheless, this is now a very successful type of clutch, largely used in many high-grade cars.

In the matter of the number of plates in the disk clutch there is no agreement between designers. Some use a very large number of thin plates, as many as fifty or sixty, and others use a very small number, as few as six or eight; in fact, it may be said that the single disk clutch, which has only two frictional surfaces, is the lower limit. One very ingenious application of the multiple-disk clutch has been made by the Sturtevant Mill Co., Boston, in the fact that the pressure on the disks is brought about by centrifugal force acting on weights so arranged as to press the tighter with increased velocity. This is shown by figure 40. One of the weights is at W. It will be noticed that this weight operates against a spring, A, which prevents it flying out and gripping at too low an engine speed. Once, however, this spring pressure is overcome, the disks indicated by the alternately light and dark spaces are pressed together. It would seem that this principle has one serious defect in the fact that at low engine speeds the gripping tendency would be small. It would, therefore, not be possible to develop high torque at low speeds, which is sometimes quite desirable. It is a fact, however, that it is almost impossible to stall an engine by applying this clutch too quickly, as it does its own releasing so promptly and automatically. It is almost human in this respect.

This principle has been elaborated in

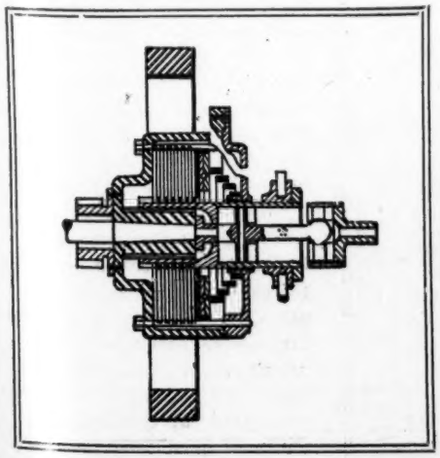


FIG. 39

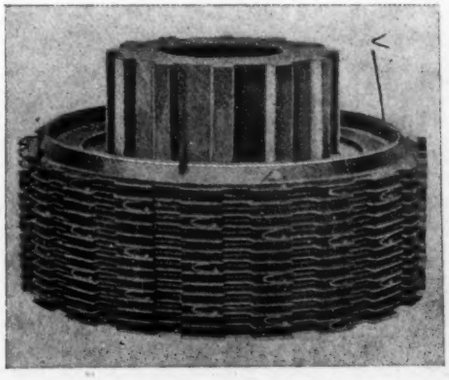


FIG. 38

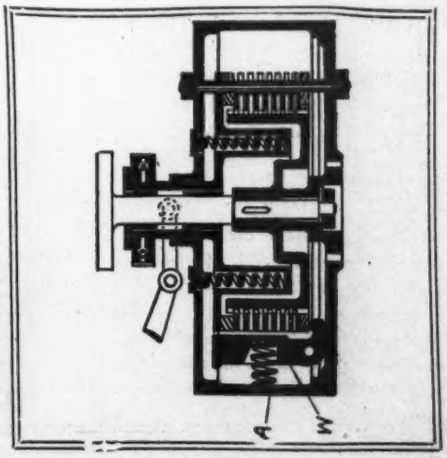


FIG. 40

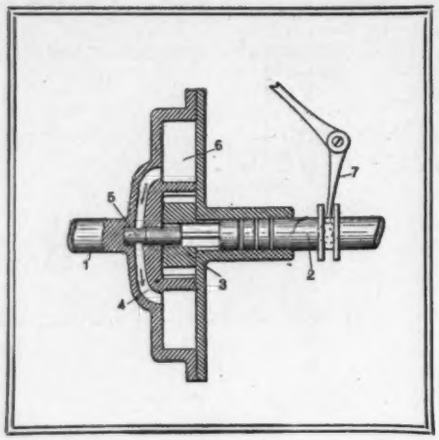


FIG. 40

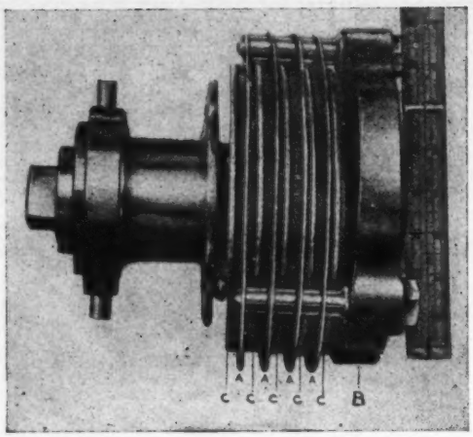


FIG. 41

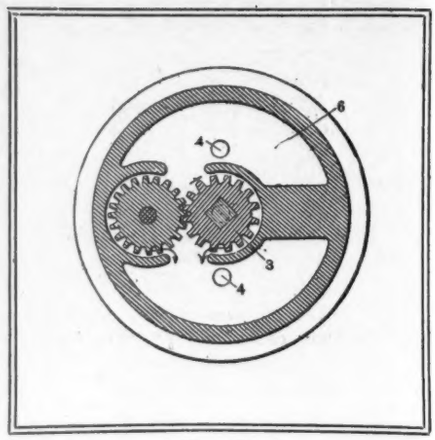


FIG. 47

connection with an automatic change of gears: gear No. 1 being picked up at a given rate of revolutions by its set of disk clutches; gear No. 2 by an increased number of revolutions by a separate set of disks, and so on. In driving a car so equipped the changes take place without being perceptible except with the closest observation. This system is open to the objection, however, of not being able to spin the engine up very rapidly and connect with the low gear, in order to jump the car out of a hole or some unusual situation. I understand this has been overcome by supplying an independently operated lever for the foot to be used in emergencies only.

With the automatic Sturtevant multidisk clutch it has been found experimentally that, for the maximum slip speed usual in motor cars, 15 to 20 pounds per square inch pressure is safe, and the lubricated cast iron disks scarcely wear out the tool marks after many thousands of miles use. They further state that experience has shown them that safe slip is merely a matter of good lubrication and low pressures. They have experimented with small cast iron disks, running dry and with constant slip at 2 pounds per square inch pressure, and even at that they wore many weeks transmitting a heavy load.

A modification of the multidisk clutch in which the cone and the disk are combined is attracting much attention. This clutch—Hele-Shaw—is fully described by its inventor in the Transactions of the Institute of Mechanical Engineers, July, 1903. Figure 38 shows a set, or "pack," of disks from such a clutch. Careful scrutiny reveals a V-shaped circular impression struck up in the end disk. Figure 42 also shows the V shape of the disks very indeed; in fact, the whole clutch is well shown here in section. I call attention to the female cone, D, bearing on the male cone, F, when the clutch is thrown out, thereby checking the spinning tendency of this clutch, or, if the viscosity of the oil is heavy, holding it quiet during the changing of gears by the motor car driver.

In place of the entire surface of the disks bearing, only the V portions engage. This clutch is copiously lubricated, and the V, or engaging portions of the disks, are perforated with holes so that the oil may circulate quickly in and out of the V grooves as they are engaged and disengaged. Outside the V portions of these plates or disks there is a comparatively large space between them, permitting the free circulation of oil and consequent rapid carrying away of heat if the clutch slips much in the operation.

In connection with the article referred to in the Transactions of the Institute of Mechanical Engineers there are some very good data on power transmitted by various spring pressures, given in Figure 43. Figure 44 shows the character of the curve depending upon horsepower and pressure of springs.

One thousand horsepower is being transmitted by one of these clutches running at 700 or 800 revolutions per minute and measuring 18 inches in diameter between the Vs in the disks. The following table which will prove a most interesting study for motor car designers and builders gives the dimensions and number of plates used for different horsepowers:

	Bronze	Steel
25 h. p., 27 plates of 6½ in.	14 outer	13 inner
40 h. p., 25 plates of 8½ in.	13 outer	12 inner
60 h. p., 21 plates of 11 in.	11 outer	10 inner

The space in length required inside of the clutch casing for 25 plates is 5 in., this including the space for the disengaging movement and the spring pressure plate.

The number of plates in this clutch is made to vary with the power transmitted, the diameters remaining the same within certain limits. The principle involved is that the thickness of the pack of plates shall not exceed the diameter of the plate. When this becomes necessary in order to transmit a load, the plates are increased in diameter, fewer of them being used. The clutch is necessarily heavy, but this is partially offset by the relatively small diameter. It has, consequently, little spinning tendency. The materials for disk clutches in general have been various; namely, steel on steel, steel on leather-faced disks, steel on bronze and steel disks with cork inserts. I have recently been informed of a disk clutch with cork inserts of natural cork that wore out in about 1,000 miles twice in succession. This same clutch was equipped with compressed cork inserts previously described, which have driven the car some 5,000 or 6,000 miles without perceptible wear.

It is a fact that steel disks against steel have become badly heated and cut to such an extent as to make the clutches inoperative. Steel against bronze, however, does not seem to cut in this manner and the wear after 2 years' steady use is only 0.002 inch or 0.0003 inch at the outside edge of the disks. I have not heard of the original combination of Weston, that is wood against iron or steel, being used in connection with motor cars the cone clutch stands alone in the great care necessary to so construct it as to permit it to seat itself absolutely concentrically. All the other types of clutches are for the most part free from this difficulty. But it will be seen

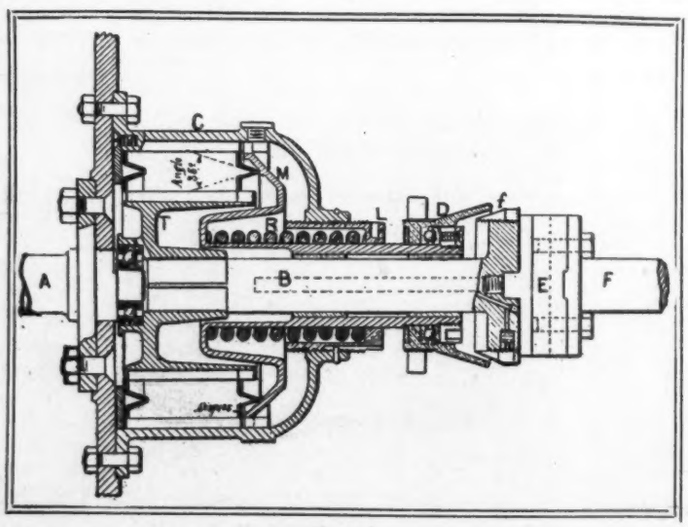


FIG. 42

simplicity of the cone fully offsets the extra care necessary in the hanging or assembling of it.

It may seem from what I have said in regard to clutches in general that it is about the worst part of a motor car that can be mentioned, but I hasten to correct this impression if it exists. As a matter of fact, I find reference to the behavior of the clutches in the last Glidden tour, a tremendously severe test of some 1,500 miles. An observer states that the clutches came out of this test quite as well as many parts of the running gear. My own experience is that it is a mighty poor motor car clutch that cannot be neglected and cannot run without any attention whatsoever for 1,000 miles.

A pneumatic clutch has been developed which has ont been widely used because of its cost. It is a plain leather-faced disk pressing a metal plate as indicated in figure 45. The clutch is located within the flywheel and the air is forced from the pump through a small air cushioning tank and from there it enters the clutch through the hollow crankshaft B and an air valve. The air deflects the leather diaphragm C, causing it to bear against the metal disk D, which can have a slight endwise motion, and forces it against the fiber disk E permanently riveted to the casing F, which latter is bolted to the flywheel of the motor.

The maker, the Northern Motor Car Co., Detroit, gives the following in regard to the clutch and its air pump which it uses on its product:

"The lubrication of the pump became a problem because we did not want the oil thrown into the air clutch, so an opening was left from the base of the pump into the upper part of the crankcase, and this air seemed to be sufficiently oily to lubricate the walls of the pump without causing trouble in the air valves. This construction is extremely simple and cheap as far as the air clutch itself is concerned, but as a whole the air clutch is expensive, from the fact that it is necessary to build a very fine air pump and air valves, and conduct the air through tight joints in the piping, and also drill out the crankshaft throughout its entire length in order to admit the air into the clutch, all of which costs much more than a good cone clutch."

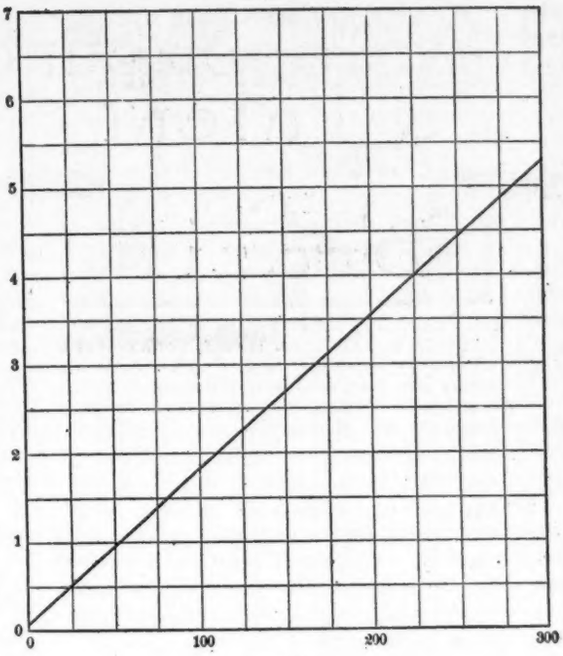


FIG. 43

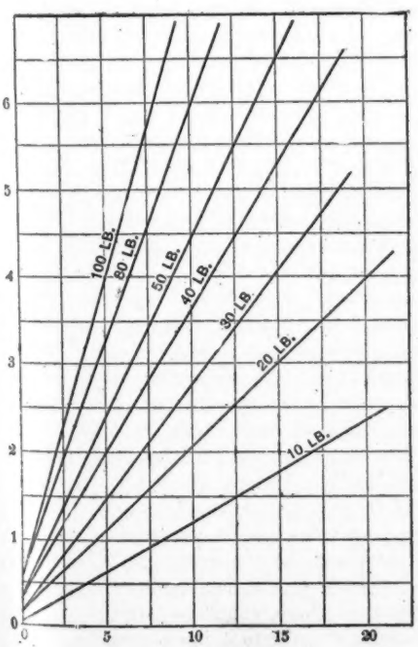


FIG. 44

Hydraulic clutches have been used but are not popular. Figures 46 and 47 show one of the simpler forms.

The magnetic clutch is in use and is fairly successful. Such clutches are operated on the same principle as the so-called "pick up magnet" found in so many plants. One complication arises in the fact that one of the parts of the magnet has to rotate continuously, the gears being always in mesh; consequently the exciting current has to be carried to it by a brush. These clutches do not heat badly, at least not badly enough to cause any trouble; but they seize rather savagely unless carefully controlled. A considerable current is also necessary on the car for the operation of the clutch. These complications rather interfere with extended usage. As I have already stated, there is a great variation of detail in friction clutches. This paper cannot cover it all, but will, I trust, be of enough interest to lead to discussion, which will do more to fully develop the state of the art than has been possible in this summary which I have prepared.

SPEED OF GRINDING WHEELS

The essence of success with both grinding and buffing wheels is to use a sufficiently high speed. The old conception of grinding regarded it simply as a process for truing surfaces previously machined as accurately as possible. The stock actually removed was so little as to be negligible. The present conception of grinding dispenses altogether with the finishing cut in the lathe or planer, thereby saving time as well as gaining accuracy. The stock removed may be anything up to 1-50 inch, or even more. Such grinding is distinctly a cutting operation, and demands a wheel especially adapted to its work. It must not be too fine, and the grains of abrasive must not be so firmly bound together that they cling to the wheel after they are worn dull: in other words, the wheel must not be very bad if it is to cut freely. And for external grinding, to which the above remarks more particularly apply, the peripheral velocity of the wheel must not run below about 5,000 feet per minute. If it begins at 6,000 feet with a new wheel, it will not be too high. In passing, every new wheel must be trued with a diamond, no matter how carefully it is centered on the spindle, if good work is expected from it.

In jobbing and repair shops where buffing is done only occasionally, it is the exception to find buffing equipment which does not waste more time than the added cost of a proper outfit would represent. The buffing head usually runs about as fast as would be proper for an emery wheel—that is, about half as fast as it should—and the wheel itself, whatever its original diameter may have been, is usually worn down even smaller than the average emery wheel. When we consider that the function even of a buffing wheel is to cut, and that the pressure which makes it cut is due entirely to the centrifugal force of the soft cotton fibers, the necessity for speed is apparent. For maximum efficiency, a buffing wheel should have a diameter of 12 to 14 inches, and should be speeded at 3,000 revolutions per minute.

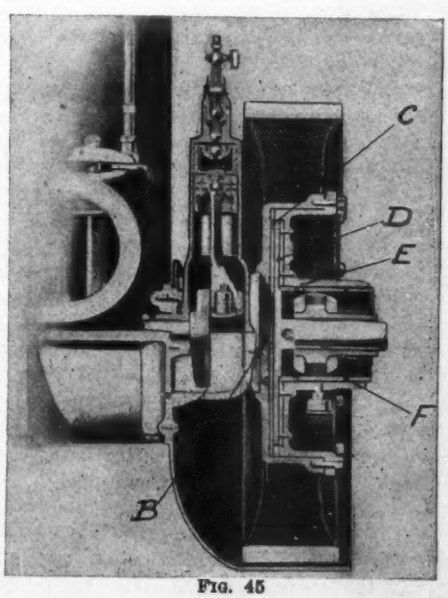


FIG. 45

How to Secure a Patent in Brazil

EDITOR'S NOTE—This is second of a series of articles on obtaining patents by H. G. Ward, Motor Age correspondent, Washington, D. C. Subsequent articles will deal with securing patents in foreign countries.

THE following is a summary of the requirements of the Brazilian laws for the granting of patents for inventions, either original or in confirmation of patents obtained in other countries. It is required that applicants for patents in Brazil shall deposit in the first section of the head office of the ministry of industry in Rio de Janeiro a report or description, in duplicate, in which the invention, its use and purpose, shall be accurately described; and therewith there shall be deposited, in duplicate, all plans, drawings and models necessary for the perfect comprehension of the invention, so that, with the explanation in the report, any competent person can understand the claim of the inventor and employ his discovery, apply it to further discoveries, or make use of the improvements it introduces. The concluding paragraph should sum up the claims of the inventor and the limits of the rights sought. At the beginning of the first page of the report there must be a description of the invention, in the shape of a title paragraph, written in Portuguese, without correction, underlining or erasures, initialed on each sheet and dated and signed by the inventor or his representative. The report itself may be in any other language, subject to the requirement that certified translations of it must be furnished, but this title paragraph must be in Portuguese, authenticated as indicated. The inventor or his representative shall then petition the minister of industry for the patent, referring to the report deposited. In drawing up the report describing the invention the following general rules should be observed:

Information as to weight and measure shall be given according to the metric system; as to temperature, according to the centigrade thermometer, and as to density according to specific weight. The plans and designs shall be made upon suitable white strong paper without folds or joints, and with black indelible ink, to permit of their reproduction by photography or other similar process. The sheets shall be 33 centimeters—centimeter, 0.3937 inch—long by 21, 42 or 63 in width, the design enclosed in a single-line marginal frame, leaving a margin of 2 centimeters all around. The plans thus inclosed shall be drawn to metric scale, represented on said sheets, the sheets also be numbered, if there is more than one, and signed by the inventor in person.

If the inventor deems it advisable he may affix to each plan a copy in colors. In case of complicated or very large mechanical models duplicates will not be required. The report shall be deposited by the inventor himself or by his legal representative and a receipt will be given for it by the officials.

A separate petition must be filed for each invention. The petition must contain the name, nationality, profession, domicile or present abode of the petitioner, the nature of the invention, with its purpose or application, in accordance with the documents accompanying the report filed in the department, without any restriction or reserve. The petition shall also contain a list of the documents and plans filed in the department, a full and properly authenticated power of attorney in case the petition is not made by the inventor himself, the original patent or a registered and authenticated copy of the same in case the petition is for the confirmation of a patent granted in another country, or of the original patent in case the petition is for a patent for improvements made by the concessionaire of the original patent, and a certificate of the first patent if it refers to a patent granted to another person.

When the application is made to inventions already patented the same rules are to be observed as to the filing of the report describing the patent except that the plans and designs shall show modifications of the original by means of dotted or broken lines in the same colored ink. In case the petition is clearly irregular or incomplete the minister will by letter indicate the irregularity or imperfection, the inventor losing no rights of priority pending correction. When the report of the patent has been examined and judged to be in order it shall be published for 15 days in the Diario Official and one of the designs or models exhibited in the head office of the department, where it can be examined by the public. After such publication and the approval of the petition by the minister the patent will be issued by decree signed by the president, giving the name, nationality and residence of the inventor and the name of the invention, referring to the reports and documents on file. Official publication of the decree as issued will be made in the Diario Official.

Provisional titles or temporary patent rights will be granted in certain cases. It is provided that if an inventor, before obtaining full patent rights, proposes to make experiments with his invention or to make exhibition of the same in an official or semi-official way, he shall deposit a report upon his invention as in the case of regular patents, except that it need not be in duplicate, and shall then petition for a provisional title or patent for whatever period he may wish, but not to exceed 3 years. The provisional title will thereupon be given without further formality by the minister of industry, but it is provided that if the inventor shall use his invention for industrial purposes without obtaining a regular patent he shall lose his right to priority guaranteed from the date of the deposit of his original papers.

If within the term of his provisional title the inventor shall petition for full patent rights he shall be allowed to add to, subtract from, or substitute in the deposits he has already made, or may withdraw them altogether at the close of the term, with the permission of the government of Brazil.

The securing of a patent in Brazil involves an expense of from $65 up, indefinitely, including the attorney's fees, the difference depending upon the nature of the invention and the ease or difficulty of proving the claims, publication expenses and fees for experts, as well as certain tax charges.

Retaliatory Patent Legislation

Every motor car manufacturer and those in allied trades are interested in a movement on foot in congress looking toward the passage of patent legislation of a retaliatory nature, especially against England. A great deal has been written about the unfairness existing in the patent relations between the various countries included under the international patent league. In most countries besides the fee for application required after a period varying from 1 to 4 years an annual tax is required of the patentee in order to keep his patent alive. Again, it has been usual in these countries, after a period varying from 1 to 4 years or more, to require of the patentee what is technically

known as "working the patent." This means, in other words, to actually manufacture it in the country granting the patent. In thousands of cases this would naturally work a hardship on the patentee, for three-fifths of the patents taken out are for the purpose of protection and not for the purposes of manufacturing. England has required an annual tax, which tax began 4 years after the granting of the patent. The fee for the fifth year was about $20 and for each succeeding year up to the final year £1 more, or $4.86, until the fourteenth year, requiring £14, or $68.04, which was the result of this grant. This, in itself, was an unjust discrimination against American inventors, for the reason that in the United States patents are granted

for 17 years and no fee other than the government fee of $35 for each patent is required. To cap the climax England passed legislation, which became effective January 1, 1908, requiring the foreign inventor to "work his patent" or the same would be forfeited. An English patent, running for the full term of 14 years, costs an American inventor upwards of $500. Now comes the added imposition of "working" in the country in which the patent was granted. This will mean that each patent taken out must be actually manufactured in the British possessions in order to hold the patent valid, and, as a great many patents are merely protected inventions and not intended for manufacture, the difficulty of holding these will be plainly apparent. The act is somewhat retroactive, but so far American patent attorneys have not expressed a decided opinion as to how much is retroactive. Naturally American inventors are aroused over this discrimination and a movement is on foot with the object of an addition to the United States patent laws which will require foreign inventors to pay a tax, also to "work" their patents in the United States. In other words, it is proposed to treat foreign inventors in this country exactly as American inventors are treated in their countries. In this way it is expected the other countries will be brought to terms.

INFORMATION OF VALUE TO MOTORING TOURISTS

THIS is the season of the year when owners of motor cars contemplating an extended tour of Europe are seeking information as to the red tape necessary to go through before the trip starts. It is no simple matter to go upon such a journey, for there are many formalities to go through before the motorist is free to begin his expedition. The car must be shipped, passports must be secured and it is most advisable to get in touch with the French authorities, for most tours start from Paris. Recognizing how hard it is to secure this information, the Automobile Club of America, through its bureau of tours, has compiled a book in which is set forth just what a motorist should do before starting on a tour from Paris. It says regarding these details:

Ocean Freight to Havre by French Line boats—On cars weighing, gross, less than 4,400 pounds, 21 cents per cubic foot. On cars weighing, gross, more than 4,400 pounds, 26¼ cents per cubic foot; $12 for derrick into ship and from $5 to $7 for derricking out. On cargo boats of same line, respectively, 13 cents and 16 cents with same derrick charges.

Return from Havre to New York—On postal boats, 17 cents per cubic foot, any weight, with derrick charges $5 to $7 in and $12 out. On cargo boats, 12 cents per cubic foot with same derrick charges.

Ocean Freight to Marseilles, via Fabre Line—25 shillings and 5 per cent per cubic foot. All machines over 3,000 pounds hoist extra in and out.

Charges at Havre—The various items for landing, unloading, etc., will run in the neighborhood of $25.

Customs—On cars weighing under 275 pounds a deposit of 120 francs per 100 kilos. On cars weighing more than 125 kilos a deposit of $10 per 220 pounds. Average deposit: Touring cars, $175; limousines, $200. This money will be refunded when leaving the country if within 1 year. French cars are free of duty on presentation of a certificate issued by the French customs at the time the car was first exported from France. This is good for only 1 year but can be renewed if application is made before lapse of the year; as there is much red tape and delay about this, it is usually advisable to pay the duty and have it refunded.

Registration—A "circulation permit" for the car must be procured. It is issued after examination by a government official. Application for examination must be in French, and made on 60 centimes government stamped paper, obtainable at the bureau of tours of the Automobile Club of America in the United States. It must be addressed to the prefect of the department in which it is desired that the examination take place. It is advisable to have a photograph of the car.

Driving Certificate—Application to same prefect. Applicant must pass practical examination before an official of the department of mines. This is usually made at the same time as for the circulation permit, but two separate applications must be filed. The application must be accompanied by five unmounted photographs of the applicant for driver's license, 1¼ by ⅞ inches, each showing the head and part of the bust. Application must give both Christian and given names.

Regulations—Lighted acetylene lamps are forbidden in cities and towns. Carry horn and two lamps, one of which is white and one green, left. Also rear light showing number distinctly. Two brakes acting independently are necessary. Emission of smoke from exhausts in Paris is punishable by a heavy fine.

Rule of the Road—Keep to right, pass on the left.

Speeds—30 kilometers, or 19 miles, in country; 20 kilometers, or 12 miles, in built-up sections.

Touring Club of France—At 65 Avenue de la Grande Armee, Paris. Cost of membership 6 francs or $1.17. Membership practically is essential and can be procured through the bureau of tours of this club without any endorsement further than certificate of membership in the A. C. A. This facilitates getting necessary papers, procuring maps and touring information and permits for passing frontiers into neighboring countries.

A. C. A. Representative in Paris—Major F. A. Mahan, 51 avenue Montaigne, legal adviser for club members, who procures frontier passes and all licenses. For this he charges a fee of $25.

Automobile Club of France—At 6 Place de la Concorde, Paris. Extends "strangers' privileges" to A. C. A. members, which merely entitles them to the use of the café.

Association Generale Automobile—At 8 Place de la Concorde, Paris. Membership procured through the bureau of tours of the A. C. A., which keeps application blanks on hand. Membership costing 10 francs a year procures a large discount in purchasing supplies and greatly facilitates getting driver's license if applied for at the office of the association. The officials of the association are specially authorized to examine candidates. The association also furnishes chauffeurs.

Map Dealers in Paris—Henry Barrère, 21 Rue du Bac; Touring Club of France, 65 Avenue de la Grande Armee; A. Taride, 18 Boulevard Saint Denis.

Passport—It is advisable to carry a passport.

Crossing the English Channel—Boulogne to Folkestone, Dieppe to New Haven, Calais to Dover, Havre to Southampton. It is not necessary to crate cars. Average cost $20 at owner's risk; $26 at steamship company's risk.

Crossing the Mediterranean—From Marseilles to Algiers, fast steamers, 25 to 28 hours, tri-weekly; slower steamers daily. It is not necessary to crate cars.

Shipping to the Orient—French Line steamers will carry cars uncrated from Marseilles to Ceylon, India and China,

The Readers' Clearing House

DISCUSSES IDEAL CAR—No. 6

St. Louis, Mo.—Editor Motor Age—I have read with much interest the expressions of Motor Age readers in regard to the ideal motor car. If a composite list of specifications were made, some interesting tendencies in popular taste would be revealed, but I am inclined to criticise some of the suggested designs either for the use of mechanism or methods which have not proved satisfactory in actual use or for the inclusion of purely theoretical matter. Incidentally, the specifications of the ideal car of 10 or 15 years hence are not likely to be set down in black and white today. The ideal car must be an improvement on any existing motor car or it fails to come under the definition. On the other hand it must not be based on untried theories or employ either out-of-date or untested methods. The ideal car of today must be one which a well-equipped factory could turn out and put on the market in a comparatively short time. Accordingly, I am encouraged to send in my suggestions based on a little practical experience and amateur theory.

Certain marked tendencies have been revealed in the last few years which are logical and which are in the direction of the ideal. One of these is a motor of greater flexibility than the four-cylinder, four-cycle gas engine of today. The most important step is the six-cylinder engine and without going fully into the arguments pro and con, I will give a few of the chief reasons why the practical ideal car of today should have six cylinders instead of four: All concede there is less vibration in a six-cylinder engine, a matter which anyone can prove for himself by riding in a car so equipped; that there is no dead center in a six-cylinder motor and that for rated power the cylinders themselves can be made considerably smaller. It is generally understood how important are these facts in smooth running and the ease of control, but it is important to remember that the durability of the engine, transmission and car as a whole are also affected. The defects inherent in four cylinders, such as the uneven torque and heavy explosions, necessitate a large, heavy flywheel, larger and stronger parts, such as connecting rods, and a high rate of speed for piston travel. In the six-cylinder motor it has been proved absolutely that the weight saved by a very small flywheel and by lighter parts is about or nearly equal to the weight of the other two cylinders. Finally, all this amounts to less pounding, strain, stress and vibration, longer life to the car and to the tires as well as greater comfort to the rider and maximum ease of control.

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems and invites a discussion of pertinent subjects. Correspondence is solicited from subscribers and others

Another tendency is toward the smaller car for all around practical purposes. It is just as absurd to use a seven-passenger touring car to take a couple of women shopping, bring a man home from his business or take a small party to the theater as it would be to use a tallyho coach for such purposes. On the other hand, the runabout accommodating only three cannot give the maximum every-day service and the rumble seat is not always entirely comfortable. Hence, the ideal car would seat four or five comfortably, including the driver, and would be as small as possible for its load. The wheelbase of such a car need not be over 110 inches and might be less, which, with the proper spring suspension, would make it as easy riding as a car of longer wheelbase. Anyone who has driven a short wheelbase car on winding country roads or manipulated the same in city streets knows the great advantage of the shorter wheelbase.

The popularity of the town car and taxicab is sufficient evidence that the large heavy car with long wheelbase is far from ideal in manageability. The matter of weight is one which has been taken too little account of by manufacturers. The joy of driving a light, smooth-running, manageable car is an important factor in the pleasure of owning a motor car. The ideal car would be absolutely as light as is consistent with strength.

The tendency toward the drop frame is a logical one, but I would go still farther and without lessening road clearance I would swing the body as far down as possible to establish a low center of gravity. A low gravity center means immensely-increased stability on bad roads, in tight places or in rounding corners; it means far less of the side sway which is a "tire-killer"; it means a much finer and more graceful appearance of the car as a whole.

Power is merely a matter of the amount of weight to be moved over any reasonable grade at a certain piston speed with ample reserve for emergencies. The ideal car being light would have a horsepower of 33¾—six-cylinder of 3¾-inch bore, A. L. A. M. rating—which would be more than equivalent to 40-45 horsepower in a heavier car of different construction. The interior of the cylinder heads or explosion chamber would be semi-spherical in form, ground and polished to a high degree, so as to present a smooth surface and the valves would be oppositely disposed in pockets of special shape, thus giving a chance for very large valves but without too many winding passages for the entrance and exit of the gases. Some very good cars carry the valves in the head and operate them by a super-imposed single camshaft. But this has certain defects. It is in the way; it is apt to scatter oil; it is exposed to dust and grit. It probably takes no more power to speak of to run two camshafts in the crankcase where the lubrication is automatic, attended to by splash as well as force feed.

The desire for a snappy car with a quick get-away is responsible for the American practice of squaring the bore and stroke. I say American practice because I think that careful tabulation would show that the best foreign practice is in favor of a longer stroke than bore. Any well-made six-cylinder car should have a quick enough get-away and while for this very reason it would not be so important to have a long stroke as in a four-cylinder car, there are other merits in the engine of long stroke which would remain. Most motors run faster than is necessary and the most durable and satisfactory motor will be one that turns over more slowly for the amount of distance traveled, the gear ratio being the same. With a bore of 3¾ inches the ideal car has a stroke of 4¼ inches.

I am surprised that anyone outlining specifications for an ideal car would include either dry cells or storage batteries as part of the equipment. The ideal car would be equipped with a magneto and of the two principal types I would prefer the low-tension with a perfected make-and-break sparking apparatus. The absolutely positive action and the large flame generated by the make-and-break mechanism, together with the high state of perfection to which it has been brought by the best makers, give this system first place as the ideal ignition system. The ideal car would have no need of an auxiliary system, any more than of an auxiliary engine. But it would be equipped with a mechanical starting device, for cranking is surely a ridiculously antiquated method and a black eye to the modern motor car.

Three speeds would be included in the transmission. Two only would be used most of the time. This part of the motor car is a makeshift at best, but as no other system has been found that is perfectly practical a three-speed transmission of the selective type must be included in the practical ideal car.

Two or three makers of air-cooled cars have brought air-cooling to a high state of perfection, but even should we grant that the best made air-cooled car never gets too hot, the ideal car cannot be an air-cooled

car at present because the ideal car is almost noiseless and no air-cooled car ever built is that, nor is it possible to keep the engine of an air-cooled car quite as clean either inside or out as the engine of a water-cooled car. On the other hand, the radiator in the ideal car would be of the Renault type, placed behind the engine in front of the dash. To those who do not agree with me, I would call the attention of these questions:

1—Is there any part of a motor more exposed to injury than the radiator?

2—Is there any part of a motor harder to repair?

3—Is there any part of a motor which the owner can do less to repair himself?

4—Is there any part of a motor more expensive to repair?

5—Is there any part of a motor which will put the engine out of commission quicker than a waterless radiator?

A visit to the repair shops and the garages will show that these are not idle questions. That the average water-cooled car is frequently overcooled, yet sometimes gets too hot, is a rather serious fault, especially in a car that is used in hilly country or on extended tours—and, of course, the ideal car is an all-around vehicle adapted for hills and touring as well as city work. Accordingly, I am tempted to include some arrangement in its specifications, which is theoretical rather than proved by usage. Such an arrangement would be to have very ample radiating capacity and ample water supply, part of which would be used as a reserve. Under ordinary conditions of driving a portion of the cooling apparatus would not be used; either the radiator would be blanketed or a part of it cut off; then for low-speed work or continuous hill-climbing or speeding, this reserve could be called upon, so that the water would not boil away. I believe such a device could be made simple and practical and applied to the thermo-syphon cooling system.

The ideal car would carry one fully-inflated tire in a dismountable rim, all the wheels being thus equipped. A well-constructed, old-fashioned cone clutch with cork inserts or with flat springs beneath the leather has surely proved itself in satisfactory service and I see no reason to adopt the more complicated multiple disk.

Although personally inclined toward the stability and mechanical efficiency of the double chain drive, I think that a car of the dimensions given could use shaft drive with its advantages of quietness and cleanliness, because a light car with a six-cylinder engine would exert less strain on the rear axle, which would be of the full floating type. But I would not overload the center of this member by placing there the change speed gears, but would put them in the usual place, forward under the running board, where they would be accessible to the driver. Spring suspension is at last receiving the attention it deserves. Nothing equal to the full elliptic spring has been discovered for easy riding combined with strength and simplicity. The action and durability of a spring depends on two things: The accuracy of its design for the weight it has to bear and the quality of material used. The springs of the ideal car would be long, flexible and made of the finest material.

In spite of the slightly increased length of crankcase required, I think I would adopt plain instead of ball bearings for the crankshaft, because of their simplicity and economy and because with six-cylinder engines of small bore there would be the minimum of wear on well-made plain bearings.

The Pierce system of placing the change speed lever on the steering column I regard superior to the lever at the side, as found out by actual use. Both brakes would be located on large drums on the rear wheels —none on the transmission—an illogical place for a brake. There would be a foot accelerator but no governor. There would be, however, a connection between the clutch lever and the throttle valve by means of which whenever the driver declutched the motor would be throttled down to prevent racing. There would also be a cut-out button on the steering wheel to cut out ignition when coasting.

Luggage capacity is something that the average body builder does not worry about, in consequence of which the foot room in the tonneau and the running boards are well encumbered whenever a tour is undertaken. In the ideal car the gasoline tank would be in the only safe and logical place under the driver's seat and high enough to feed the gasoline by gravity on any grade without the necessity of pumps or pressures. The opening to the space beneath the rear seat would be large enough to admit a small steamer trunk while another trunk or suitcases could be carried on the rack behind.

The running board would be of the old-fashioned open metal style instead of the leather, solid or rubber-covered style. The open metal running board automatically serves as a mud scraper and keeps the floors of the car clean, besides not gathering any water; a thorough coating of waterproof paint once a season would keep this looking neat.

The headlights would be thrown up high but not attached to the fenders; the brackets being supported by an extension bolted to the main frame. The double three-point suspension as used and perfected by the Nordyke & Marmon people has much to commend it, but the average well-balanced car with good spring suspension is luxurious enough in riding qualities and the ideal car would have simply the ordinary suspension, with four simple shock absorbers. The manufacturers of the Northern and one or two other cars have given the subject of muffling the attention it deserves. In the ideal car the gases escape at practically atmospheric pressure; the exhaust ports and manifold pipes are unusually large and the latter are deeply flanged to cool the gases, while a large double muffler is supplied.

Other details, such as supplying a simple and easily-operated sprag; carrying the tail light high up out of the dust, furnishing convenient lockers for goggles, gauntlets and a pair of pliers, upholstering in plain instead of tufted leather—which gathers in all the dust—and the elimination of unnecessary brass work, especially where same is on or near the painted body, are matters which would receive attention from the designer.

Instead of the filthy canvas apron underneath engine and transmission and instead of the heavy rigid dustpan, the ideal car would have a light metal protector hinged along its greatest length with practical clips which would allow half of each side being open to give access to the crankcase or transmission from below without detaching the whole pan.—John Grilly Cole.

MAKERS OF FLANGED WHEELS

Last week on page 18 of the Readers' Clearing House, S. T. Moser, Huntdale, N. C., asked for the names of manufacturers of flanged wheels for motor cars. The Goodman Co., Bucyrus, O., manufactures flanges suitable for attaching to wheels of motor cars to allow them to run on railroad tracks. These flanges can be attached in from 15 to 20 minutes without calling for the removal of the pneumatic tire. The flanged rim is made of sufficient diameter to encircle a pneumatic tire and is attached to the wheel spokes by six radial arms that strap to the alternate spoke of the car wheels.

BEST BRAKING SYSTEM

Milwaukee, Wis.—Editor Motor Age—Which braking system does Motor Age consider the better for a four-cylinder car of 40 horsepower, weighing about 2,800 pounds; internal expanding on hubs and contracting on driveshaft, or internal expanding on the hubs and contracting on the same?—A. S. H.

As to which is the better braking system, internal on hubs and contracting on the driveshaft or internal and contracting on the rear hubs, is largely a matter that rests with the designer. The present tendency is to place both sets on the rear hubs, one internal and the other external; and approved practice is making use of separate drums with an air space between them so that a constant application of the internal set does not heat the drum that the external operates on. On the other hand, many makers like the shaft brake because it acts on a shaft which revolves many times faster than the rear wheels; and the braking action is correspondingly great. The brake on the driving shaft, or transmission shaft,

exercises its retarding influence through the differentials and so places a strain upon this part of the machine. Where only one set of external rear hub brakes is used, it is possible to make them dust-proof to a good degree, while the transmission brake is well protected from dust by the mud apron, the complete result being a braking system well protected against dust.

FRENCH HORSEPOWER RATING

Sinabury, Conn.—Editor Motor Age—Kindly inform me through the Readers' Clearing House columns the exact relations between the French and American way of rating horsepower.—C. W. Schwartz.

American horsepower, according to A. L. A. M., is obtained by the following formula:

$$H = \frac{D2 \times N}{2.5}$$

H = Horsepower
D = Cylinder diameter
N = Number of cylinders
2.5 = Constant

In calculating the horsepower of a four-cylinder car, with cylinders 5 inches in diameter, we get

$$H = \frac{(5 \times 5) \times 4}{2.5} = 40$$

The French make use of the same formula except in that they frequently divide by 3 instead of 2.5, the aim being to make the horsepower as low as possible. The reason of this reduction in horsepower rests in the fact that in the early days French motor cars were taxed according to horsepower, and it is almost a certainty that this tax still exists.

TO AVOID SKIDDING

High Shoals, Ga.—Editor Motor Age—Tell me through the columns of the Readers' Clearing House what is the best thing to do to prevent skidding. The roads in my country are narrow and at this time of the year one runs into wet spots before aware of it, the result being a skid into a ditch and trouble. My car is a 40-horsepower machine with a 112-inch wheelbase and weighs 3,000 pounds when on the road.—Walter H. Jones.

To avoid skidding, slow up before striking the wet spots. Should this be impossible, don't apply the brakes or disengage the clutch when the skid starts, but slow down the motor as much as possible. If you apply the brakes when on the wet spot the wheels are locked and the car will skid worse than if the brakes are not applied, because locking the wheels practically converts them into runners which carry the car in the line of direction the momentum of the machine tends to take it. On the other hand, if the brakes are not applied, but the clutch left engaged and the motor slowed down, the rear wheels will tend to move the car in a forward direction; should the tires during the skid strike a hard spot the wheels will immediately tend to stop the skid and move the car ahead; whereas, with the power shut off there would be no tendency to arrest the skidding, but the car would be an uncontrollable weight, acting only in response to the force which caused the skidding. Motor Age knows of one case where a car upset after a skid because the driver disengaged the clutch and there was no force acting on the rear wheels to counteract the skid, the result being that the car skidded completely into the ditch and upset, fatally injuring the driver. The use of tire chains and special non-skid covers will prevent skidding to a great extent. During a skid the steering wheel must be handled with particular alacrity, as the occasion demands, the main object being to keep the car headed in the safest direction.

PAPER FOR FRICTION SETS

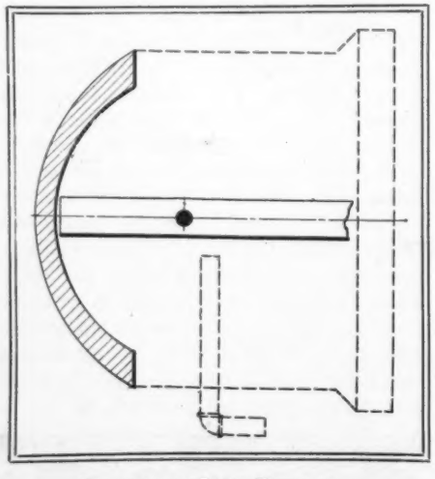
Fort Wayne, Ind.—Editor Motor Age—Does Motor Age know of any one making paper for friction transmission?—B. M. C.

There is no record of any firm, other than the Rockwood Mfg. Co., Indianapolis, Ind., making such paper.

THE BEST GEAR RATIO

Allegheny, Pa.—Editor Motor Age—I have placed an order for a seven-passenger six-cylinder touring car of 54 horsepower, A. L. M. A. rating, and 36-inch wheels. The maker wishes to have a ratio of 2.5 to 1, and claims that it reduces the wear on the engine. It seems to me that a ratio of 3.5 to 1 would be better for such a hilly district as Pittsburg. If the engine is running faster, it is not straining as much, so I think the wear would be nearly the same in each case. A car geared 3.5 to 1 would be easier to run through the city, and better for touring in this locality, as it could accelerate more rapidly between the water breaks which are so abundant near here. Please explain fully the pros and cons of this matter, as it has been the source of many arguments.—M. Fahnestock.

The reason for providing a car with a certain gear ratio, is to enable its motor to run at its normal speed, or at as near that rate as possible, while the car is traveling under different conditions. Thus, gearing a car very low would make it necessary to overspeed the motor in order to obtain a fair speed on the level, though such a car would be in its element on the hills and should climb anything "on the high." Gearing it up, on the other hand, would make it very fast on the level without the necessity of speeding the motor above normal, but it would make a poor car for hill-climbing or city use. Most designers have attempted to strike a happy medium by adopting something that will not go to either extreme, and thus be found suitable for the use of the greatest number without alteration. But such an expedient naturally does not fit a car for particular uses, such as that you wish to put your new machine to. With regard to the argument put forth by the maker, a certain gear can hardly be said to reduce the wear on the engine, unless the car with that particular gear is used more or less constantly in a locality adapted to it. A very high-geared car will have to strain its motor constantly in a hilly district, at least where the nonsensical practice of trying to drive it over all kinds of hills on the high, is followed, as the motor will be called upon to deliver its maximum power at a speed considerably below its normal revolutions per minute rate, and will have to labor to do so. But a car with a very low gear will be equally abused where driven constantly on level roads, owing to the necessity of racing the motor to obtain higher car speeds. Motor Age would advise the adoption of a 3 to 1 gear for the car you have in mind, and this, with the logical and reasonable use of the shifting lever wherever required, will give a machine that will have more than enough speed on the level, coupled with the ability to climb anything in the way of a hill, with its full load up.



POSITIONING LAMP REFLECTORS

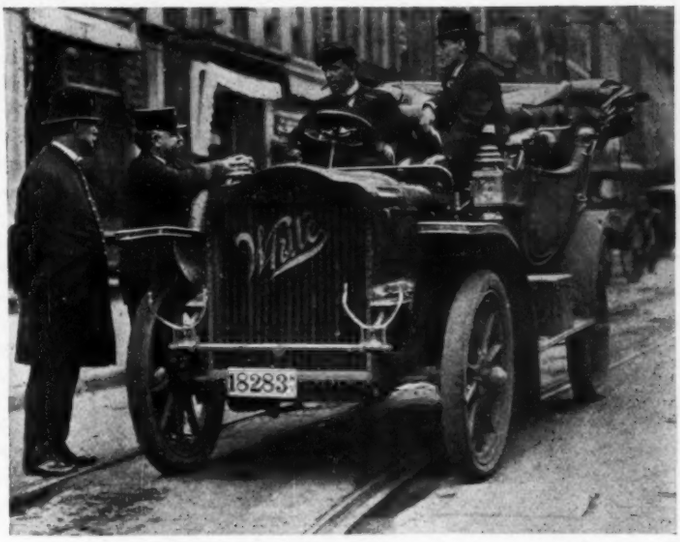
POSITIONING LAMP REFLECTORS

Milwaukee, Wis.—Editor Motor Age—The writer comes in contact with a great many different kinds of motor car lamps in which are used acetylene burners. To my knowledge there is no more than 20 per cent of the lamps in which the burners are correctly focused, or located, in other words, at the point where the reflector will be the most efficient. It may be interesting to the readers of Motor Age to know that they can, with very little trouble, adjust and locate the burners to the absolutely correct focus by following this plan: Take a strip of common writing paper about an inch wide, and about 8 or 10 inches long. Take the motor car lamp off and hold it so the reflector will point toward the sun with the front door open. Insert the strip of white paper toward the center of the reflector or as near the center as can be gauged by the eye. If the lamp is held pointing toward the sun a small hole will instantly be burned in the paper at the focal point. This distance then can be measured and the burner placed exactly where this hole was burned. In every case it will be found that the lamp will give much better light after the burner has been located at the focal point in this manner.—P. C. Avery.

Legal Lights and Side Lights

AN IMPORTANT legal battle was started last Friday by the touring bureau of the White company in a case which was undertaken for the purpose of testing the constitutionality of the New Jersey motor law, better known as the Frelinghuysen measure. Through the legal maneuvers of Xenophon P. Huddy, counsel for the White company, the case was brought at once into the federal courts. The importance of this move may be appreciated when it is considered that this is the first time that any motor law has been brought into a federal court and that the federal court would not have intervened in the matter if a good prima facie case had not been made against the constitutionality of the New Jersey law. Mr. Huddy describes the initial steps in the case as follows:

"My client, R. H. Johnston, acting for the touring bureau of the White company, was traveling in his White steamer between his office in New York city and the branch office of the White company in Philadelphia, carrying certain merchandise—in other words, he was engaged in interstate commerce. His machine was duly registered in New York state, of which he is a citizen and a resident, but was not registered in New Jersey. While passing through the streets of Trenton, he was arrested by a police officer and was arraigned before Judge Harris of the city police court and was charged with having 'unlawfully' operated his machine without having paid a license tax on same to the state of New Jersey. Mr. Johnston entered a plea of 'not guilty' and, in default of bail, was held in custody. Thereupon I applied to Judge Lanning in the United States district court, for a writ of habeas corpus, and this was duly granted. The ground on which I applied for the writ was that the Frelinghuysen law which, in effect, imposes a tax upon interstate commerce, is unconstitutional, and I also gave sundry reasons why the matter should be tried in the federal court, rather than in the state courts. The result of the hearing will be of the very greatest importance, not only as affecting the validity of the New Jersey law, but also of the laws of all other states which impose a license tax on non-residents. It is apparent that if the White company wins the impending case, and if Mr. Johnston is released, 'the lid is off' in New Jersey and all non-residents who enter that state with the intention of transacting interstate commerce will be relieved of the necessity of paying a tax."



ARREST OF R. H. JOHNSTON IN NEW JERSEY

Judge Lanning dismissed the petition upon which the writ of habeas corpus was based last Monday. The case will come up for hearing before Police Justice Harrison Friday, when steps can be taken to carry the constitutional question to the higher court. Mr. Johnston pleaded not guilty and was placed under $200 bail and released. In discussing the petition for a writ of habeas corpus Judge Lanning says: "He has not been restrained in his liberty. He is not a prisoner and there is nothing in the case, therefore, that justifies the court in taking any jurisdiction." Johnston said he would probably carry the case up on a writ of certiorari.

COMPLAIN OF POLICE METHODS

Maryland motorists have decided to make formal and concerted complaint against the county police and constables who have for some time made arrests for alleged speed violations. The grievance has reached an acute stage and the motorists declare they will have to appeal from the enforcement of what, under ordinary conditions, is a thoroughly good law. Owners of private cars and managers of Baltimore garages state that with the approach of the summer season they feel that every time they start out on a trip which takes them beyond Druid Hill park into Baltimore county, that whether guilty or not, they will return to town minus an assessment of a fine plus the humiliation of being detained and haled to court by an officer. During the past month many persons have been arrested, especially along Park Heights avenue, who claimed they had not exceeded the speed limit of 12 miles an hour. Many of them have paid fines rather than put up with the law's delays and the inconveniences incident to the taking of an appeal and a hearing in the courts. They will hereafter take appeals in every case where they believe they are unjustly arrested. The Baltimore county commissioners also have decided to make life miserable for motorists who enter Towson, the county seat. They have selected a vigilance committee from among responsible men to apprehend those who drive through the town at a rate of speed faster than 6 miles an hour. The commissioners are being assisted in this movement by the Towson Improvement Association. Some time ago the association placed signs about the town warning motorists not to exceed the law. Boys demolished some of the signs and the motorists are alleged to have ignored the remaining ones.

MINNEAPOLIS' REGULATIONS

The city council of Minneapolis has passed an ordinance which has been signed by Mayor J. C. Haynes which forbids motor cars from standing on the streets of the downtown district for a longer period than 20 minutes. The ordinance was introduced by Alderman Frank Castner. The following is a synopsis of the ordinance which contains several new regulations:

Section 1—Everyone operating a motor must obtain a license in the city.

Section 2—Applications for licenses must be made to the city clerk. An owner of more than one motor car may have issued to him duplicate number plates of the license so issued on payment of $1 for each duplicate number plate. No license is to be issued to anyone under the age of 18. Non-residents who have taken out licenses in the state or municipality in which they reside, need not take out licenses in Minneapolis. One dollar is the charge for all licenses and the city clerk shall turn over all money so collected to the city treasury.

Section 3—This section deals with the limitations of speed for the motorist. The following are the limits set: For the thickly-settled or business part of the city, 8 miles an hour; elsewhere within the city, 25 miles per hour; over any crossing when any person is upon it, 4 miles per hour.

Section 4—Motor cars driven by gasoline must use mufflers and they are not to be disconnected or cut out while the machine is in operation within the business portions of the city. All machines are to be provided with a horn or bell which shall be rung or blown whenever there is danger of collision or accident. The usual laws of the road are to govern motor cars, motor cycles and motor vehicles.

Section 5—Cars used in this city during the night time to be provided with a lighted lamp with a white lens on the front of the machines and a lighted lamp attached to the rear of the machine, which rear lamp, in addition to a red lens, is to have at least one white lens, so arranged as to cast a white light upon the license number of said machine.

From the Four Winds

N S E W

HOME-MADE CUP RACER BUILT AT ST. CHARLES, ILL.

More Good Roads—Some more road along the Connecticut shore of the sound has been improved. The state highway commissioner has awarded a contract for the construction of 8,700 feet of macadam and telford road in the towns of Branford, North Branford and Guilford, the cost of which is to be $23,027.51. The road in question is one section of highway though laying in three towns.

City of Buffalo Beaten—The court of appeals at Albany, N. Y., has just handed down a decision declaring invalid the ordinance recently passed by the common council of Buffalo, taxing motor car owners $5 for the use of the city streets by their cars. This settles the dispute which arose when the city tried to collect the tax, which led to a test case being brought before Judge Hodson in the municipal court, Buffalo, against Secretary Dai H. Lewis, of the Automobile Club of this city. The court of appeals has upheld the decision of Judge Hodson.

No Increased Taxation—The budget introduced in the English house of commons shows that, contrary to general expectations, and much to the relief of motorists, no fresh taxation of motor cars is proposed for the next 12 months at least. This is regarded as a signal triumph for the Motor Union, between which body and the Royal Automobile Club the greatest rivalry exists. The union succeeded in getting some hundreds of local authorities throughout the country to petition that any further taxation on motor vehicles should be distributed toward the cost of keeping up the roads. This move has had the effect of postponing taxation altogether, for the chancellor of the exchequer's only object in adding to the impost on motor cars was to gain money for purposes of social reform such as old age pensions. The Royal A. C. has thus been badly out maneuvered by the Motor Union.

Badgers Cannot Attend—James T. Drought, secretary of the M. A. C. and the W. S. A. A., in answer to the invitation of the A. A. A. to the Buffalo convention, on July 7 and 8, has advised that because Wisconsin is so far distant from Buffalo, few or none of the members of the clubs or commissioners or superintendents of highways will be able to attend. He suggests that the proceedings and addresses be printed in pamphlet form, and he will see that every member and every person interested in good roads gets a copy.

Motoring Romance—The wonderful progress which science has made in the past half century was most vividly brought to the attention of two Champaign county couples a few days ago as they sped swiftly over the roads of that county toward Westville, O., in one of the newest improved models of motor cars. Fifty years ago these same two couples, Mr. and Mrs. John W. Fritz and Mr. and Mrs. William J. Abbott, neighbors, who reside on fine farms a few miles from Westville, traversed this same route in crude pioneer fashion, on horseback over well-nigh impassable roads, as together they eloped and were married in the little church at Westville. Since then they have resided on their farms at Westville, neighbors and good friends always. When the golden wedding anniversary came round they decided to revisit the little church at Westville, now as then together, and have the wedding ceremony once again performed. This time the trip was made after the manner of modern luxuriousness, and as the aged couples were whirled away in the auto they were cheered by the 300 people, their friends, assembled to assist in celebrating the anniversary.

Decision Interests Owners—Motor car owners of Buffalo are interested in a proposed amendment of the ordinance offered by Alderman Coppins, whereby they may store for their own use but not for sale, gasoline not exceeding 100 gallons without having to take out a license from the Buffalo fire commissioners or pay a fee. The present ordinance limits them to 5 gallons.

Boy Drivers Barred—Hereafter no person under 18 years of age will be allowed to operate a motor car in Washington, D. C., the district commissioners having amended the police regulations to that effect. Many complaints have recently been made that boys were operating cars in a reckless manner and in order to put a stop to it the commissioners decided to limit licenses to those over 18 years of age.

After Mischief-Makers—Secret service men in the employ of the Milwaukee Automobile Club are watching the Blue Mound road, a favorite course west of Milwaukee, for the miscreants who have done great damage to tires by strewing the road with planks and boards with nails protruding. It is believed it is the work of residents along the thoroughfare who have a grudge against motor cars "on general principles."

Appeal Taken—Attorney General Bonaparte has advised the treasury department that an appeal has been taken from the recent decision of the United States circuit court for the southern district of New York in the case of United States vs. W. R. Grace & Co., involving the classification of a motor car repaired abroad. In view of this fact the department has instructed collectors of customs to continue to assess duty upon motor cars which have been repaired abroad, pending the final decision of the matter.

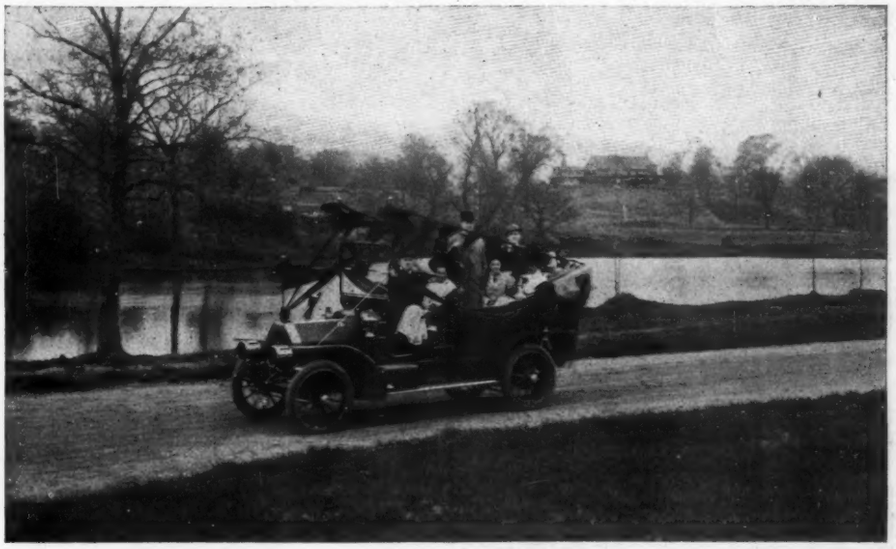
Eliminating Grade Crossings—One of the first things that impresses a motorist touring through Connecticut is the number of unprotected grade crossings with only a white sign of warning to denote the danger. The state highway commissioner is doing his best to eliminate these. One of the worst is that at Rocky Hill and another one is in the vicinity of Plainville. Not even a flag station is maintained by the railroad at these points and as many of them are concealed by bends in the road, shrubs and the like, the danger to approaching motorists is apparent.

News from the Motor Clubs

Cleveland's Big Run—The annual "big run" of the Cleveland Automobile Club will be held May 30, 31 and June 1 this year, to Cambridge Springs and return, and the committee in charge of the event are putting forth a few extra efforts to make the event exceptionally successful. While at the springs there will be a dance given for the benefit of the tourists as well as an amateur minstrel show. The tennis courts are to be at the disposal of the people on the run, and all details will be taken off their hands by the men in charge. The cars will leave Cleveland on Decoration day morning, reaching the springs in time for supper. On the return trip, the cars will leave Cambridge Springs early June 1, arriving home in time for the evening meal.

New Club at Rockville—Motoring enthusiasts of Rockville, Conn., have formed the Automobile Club of Rockville. The newly-formed organization has been admitted to the Connecticut Automobile Association and to the American Automobile Association. The new club has opened up with a rush and proposes to hold a hill-climb on June 30, this in connection with the Old Home week, a typical New England institution. The course selected to climb is what is known as New England hill. The start will be made at the foot of the hill near the coal yard and the finish will be at the little old schoolhouse. A feature of the climb is that each car entered will cost the entrant $5, which will be refunded when the meet is over if the car has actually participated. There are six events on the program and a trophy will be given to the winner in each.

Indian Day at Point Breeze—Upward of 3,000 two-wheel enthusiasts and their friends gathered at Point Breeze track last Saturday afternoon to witness the annual meet of the Philadelphia Motor Cycle Club. The feature of the afternoon's sport was the performance of S. T. Kellogg, who rode his 7-horsepower Indian over the mile course in 1:00⅘, clipping 3 seconds from his own previous track record. W. Goerke, on a similar mount, went the distance in 1:04; W. Bewley, on a 6-horsepower Reading-Standard, made the circuit in 1:11⅗, and William H. Wray, Jr., 7-horsepower Simplex, in 1:14⅗. Kellogg, on a 4-horsepower Indian, also annexed the 10-mile stock machine race in 12:23 and the 10-mile Australian pursuit race, on the same machine, 12:40⅗. W. Goerke, on an Indian, won the 25-mile open in 29:52⅕, with Kellogg second, and the 5-mile club championship went to E. T. Banes, who drove his 7-horsepower Indian over the route in 6:04⅘. The only event that went to any but an Indian machine was the 5-mile novice, which was won by L. Steinhauser on a 3½-horsepower Bradley.



MEMBERS OF GLIDE AUTOMOBILE CLUB, OF SPRINGFIELD, ILL., IN A GLIDE

Washington in Line—At a meeting of the Automobile Club of Washington resolutions were adopted pledging the club's co-operation with the Good Roads League of Frederick and Montgomery counties, Maryland, in securing the improvement of the road from Olney, through Damascus, Laytonsville, Ridgeville to Westminster, Maryland, from the $5,000,000 appropriated by the Maryland legislature for the improvement of the roads of that state. Washington motorists are vitally interested in this subject, for the success of the movement means a pike from Washington to Gettysburg on the north and to Staunton, Va., on the south, which is to be desired.

Rambler Club Growing—Three and one-quarter million miles or, to be exact, 3,224,353 miles is the total distance traveled by 160 Rambler owners who have qualified for membership in the Rambler Fifteen-Thousand-Mile Club, an organization including only those who have driven one Rambler car 15,000 miles or over. These figures were compiled by a member of the club before four new members were added, which brought the total mileage close to 3,300,000 miles. Six Ramblers have exceeded 45,000 miles and the average is 20,152. These figures have been furnished and vouched for by each owner. Some months ago when it was announced that all members were to receive sterling silver watch fobs as gifts from Thomas B. Jeffery & Co. nearly every Rambler dealer made a request for one of the fobs on the grounds that he had driven different Rambler models over the required distance. In such cases the request was denied on the grounds that each owner to qualify must drive one Rambler car 15,000 miles. The membership roll of this unique club closes on July 15.

Plans 3-Day Tour—The Automobile Club of Washington will inaugurate its touring season on May 29 with a 3-days' tour embracing three states—Maryland, West Virginia and Pennsylvania. The first day's run will be to Harper's Ferry, W. Va. The second day will be taken up in the run from Harper's Ferry to Gettysburg, Pa., which will be via Winchester, Martinsburg, Hagerstown and Jaynesboro. The third day's run will be from Gettysburg to Washington. This is an ideal trip of several hundred miles, over roads that are in good shape at this time of the year.

Wants Memorial Boulevard—President Caverly, John K. Heyl and W. D. West have been appointed delegates from the Automobile Club of Washington to the A. A. A. convention in Buffalo July 6 and 7. President Caverly will bring to the attention of the convention the project of constructing a Lincoln memorial boulevard from Washington to Gettysburg. The project was threshed out in congress several years ago, but was finally allowed to drop. As next year will be the centennial of Lincoln's birth, it is suggested that the proposed boulevard would be an appropriate tribute to his memory. If the boulevard is laid out according to the original plans it will be one of the most magnificent stretches of highway in the world in point of scenery and construction. The distance is 77 miles, and the proposed width of the roadway is 160 feet, the boulevard being known as the Lincoln way and patterned after the Appian way.

The Realm of the Commercial Car

EXTERIOR VIEW OF NEW STUDEBAKER AMBULANCE BUILT FOR A NEW YORK HOSPITAL

A TRYING test of a commercial motor truck has been made by the Logan Construction Co., of Chillicothe, O., using a regular stock model S 3-ton truck for the purpose. The test was made in the first place to satisfy the manufacturers of the truck's capabilities and in the second place to prove it would make good in one of the worst towns in the country, Cincinnati. Arrangements were made with the Sears & Nichols Co. of Chillicothe to have a load of canned goods delivered to A. Janszen & Co., wholesale grocers there. One hundred cases of canned goods were loaded in the truck and started from the factory at 1 o'clock in the afternoon, reaching Washington Courthouse at night, having made a distance of 32 miles in about 4 hours, despite the fact that in many places the road was being repaired and great care had to be exercised in going over it. One bad washout also was encountered, which was passed without difficulty. Some demonstrating was done at Washington and the next day the journey was continued to Dayton in the midst of a pouring rain, which made the roads very slippery. Dayton, 81 miles from Chillicothe, was reached safely and Wednesday was spent there demonstrating for various firms. The start for Cincinnati was made about 7 o'clock Thursday morning and the 62 miles between that city and Cincinnati were covered in good shape, the truck arriving at the garage of the Cincinnati Automobile Co. at a little before 6 o'clock Thursday evening. Not a tool had been touched to the truck during the trip, and most of the way had been made on the high gear, despite the fact that the mud in places was so soft that the wheels sank in until the front axle was scraping the road. Friday morning was spent in showing the truck on the Cincinnati streets, and 1 o'clock Friday afternoon the truck was backed up in front of the wholesale storehouse of the A. Janszen Co. and the goods delivered. For 10 days the Logan model S remained in Cincinnati, taking all the hills and doing work day after day without requiring any attention of the mechanic other than oiling up. Perhaps the most remarkable demonstration was for the A. Janszen Co., when a load of 8,700 pounds of miscellaneous groceries, together with five men, were taken up Price hill, one of the steepest and longest hills in the city.

TAXI COUP IN PHILADELPHIA

Events are rapidly shaping themselves for a descent in force of the taxicab upon Philadelphia. The first real evidence of the invasion came last week, when half a score of Thomas cabs slipped quietly into that city and were hurried to the big storage room in the upper works of the new Bergdoll company's garage at Broad and Wood streets. There was an immediate assault of newsgatherers upon anyone who might be supposed to know anything of the plans of those behind the Thomas end of the situation; but the ignorance displayed by all hands was something surprising. It leaked out, however, that a manager had been selected in the person of one H. A. Park, who had established temporary headquarters at the Bellevue-Stratford, and later betook himself to the Bergdoll plant, which will henceforth be the center of Thomas taxicab activity. It also was whispered that the large storage clientele of the Bergdoll company had been given notice that after a certain date in the near future they must seek storage for their cars elsewhere—which would seem to indicate that the company expects to go into the taxicab game quite extensively. Inquiries at the L. J. B. Motor Co., the local Thomas agent, the Bergdoll concern and at the highway and steam boiler inspection bureaus at the city hall, where licenses and permits for operating cabs would have to be secured, failed to elicit any information as to the corporate title of the company which will operate the Thomases; but hints were dropped at the two row establishments concerned that the cabs would be at work shortly after June 1. The city hall authorities gave the Motor Age correspondent a new lead, however, when they directed him to interview the Bellevue-Stratford hotel livery management as to the plans in progress for the establishment of a taxicab service, with headquarters at the Bellevue-Stratford garage. This turned out to be the Pennsylvania Taximeter Cab Co., recently incorporated in Camden, with a capital of $50,000, and with John C. Hinckle, William C. Wilson and Harrison H. Voorhees as incorporators, "to operate coaches, carriages, cabs, taximeter cabs," etc., in Philadelphia. At the garage named Manager Lewis verified the rumor that arrangenemts were well under way for the installation of such a service within the next 60 days, when it is hoped to have twenty-five of the first instalment of fifty cabs in operation. "The Pennsylvania company's vehicles,"

RAPID, WHICH MADE PERFECT SCORE IN INDIANAPOLIS RELIABILITY

Lewis said, "were now being put together in Chester, Pa., by the Hinckle-O'Brien-Lewis Co. They are of 24-horsepower, with a maximum carrying capacity of five, exclusive of the front seat, and the company hopes to have its first sample vehicle in Philadelphia within the next fortnight."

Another rumor, which has all the earmarks of verisimilitude, was that the Quaker City Cab Co. also expected to establish, in connection with its extensive horse-drawn hotel and railroad station service, a system of taxicabs—and this within a comparatively short time. President Jarvis, it appears, has already contracted for the early delivery of a dozen or more Berliet cabs, and preparations for the installation of the service have so far progressed that drivers have been engaged, so that the cabs can be put in operation immediately upon their arrival.

MILWAUKEE TRIES MOTOR CARS

The Milwaukee police department is experimenting with a motor police patrol wagon now that the chief of the fire department has been using successfully a Mitchell touring car for going to fires and responding to alarms and the sheriff of Milwaukee county has found the horseless vehicle just the thing for rounding up thieves and violators of the law. The patrol wagon is a massive affair and was built for the city by the Charles Abresch Co., of Milwaukee, carriage and wagon builders, on a Meiselbach Motor Car Co. chassis. The body is exactly like the horse-drawn patrol. The car is stationed at central station and on the first call made the run from Broadway and Oneida street to Thirty-sixth street and St. Paul avenue, a distance of about 3½ miles, in 25 minutes. It was necessary to wind through traffic-choked Grand avenue. The Abresch company will ask the council to purchase the car at $4,000. The service it has given thus far is beyond expectations and no doubt the council will act favorably.

RUSSIA IS INTERESTED

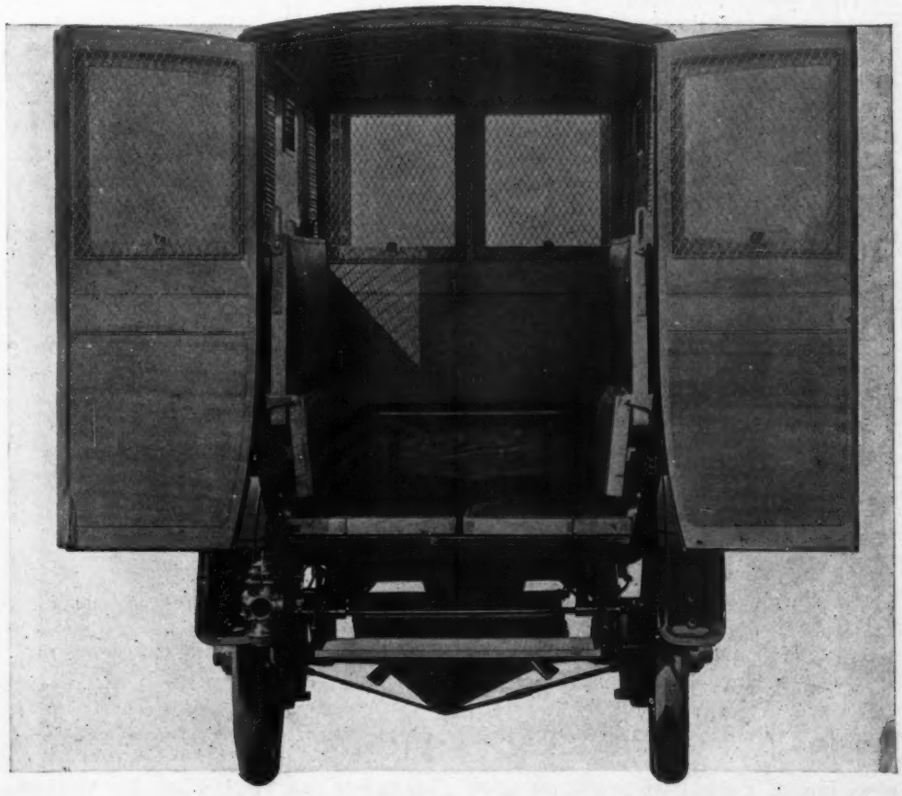
Russia is the latest country to take up commercial motor vehicles to any considerable extent. On May 24 the Moscow branch of the Russian Motor Club will hold a commercial vehicle competition over the Moscow-St. Petersburg road. Vehicles will be arranged in three classes, namely, class 1, for vehicles carrying a load of over 2½ tons; class 2, for cars carrying a load between 1½ and 2½ tons, and class 3, for cars carrying loads of under 1 ton. From the maximum useful loads set forth in the makers' catalog a deduction of 6½ cwts. will be made for body work. There is no speed limit for the third class, but the maximum speed for the first two classes is 10 miles per hour, and neither of these classes, by the way, may be shod with pneumatic or iron tires. Included in the trial is a hill-climbing test, in which the driver has to stop half way up the hill and restart.

STUDEBAKER BUILDS AMBULANCE

A Studebaker motor car ambulance, recently delivered to the King's County hospital of New York city, has four collapsible berths, which are arranged so that they can be folded up out of the way when not in use. Access to the ambulance is gained from the rear and from the side, just behind the driver's seat. The engine is rated at 30 to 35 horsepower and the chassis has a 136-inch wheel base.

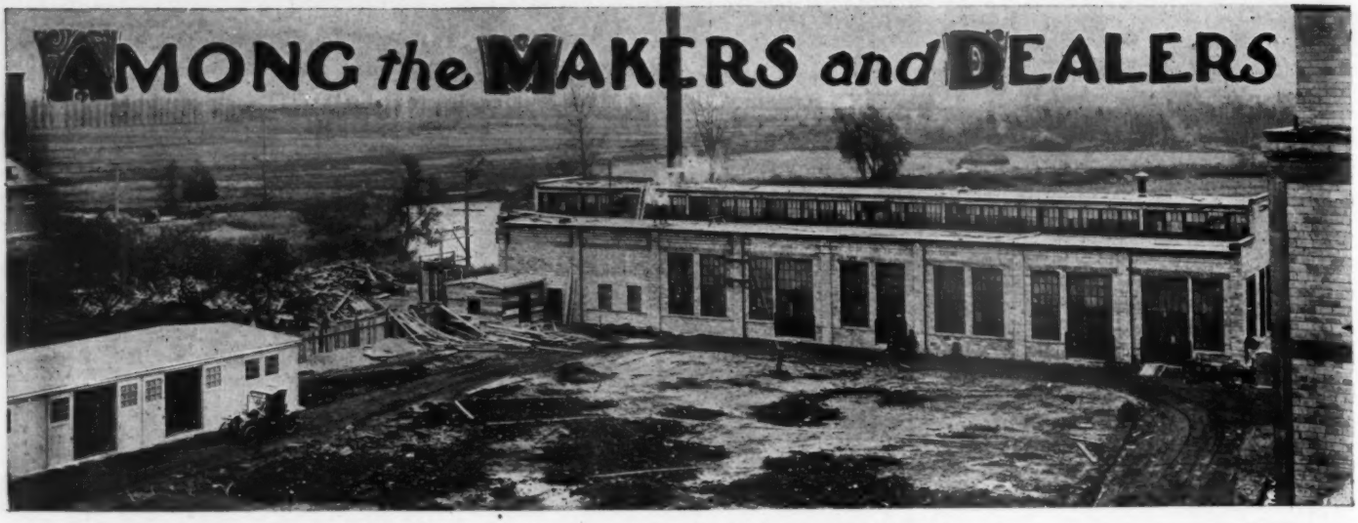
MOTOR CARS FOR CITY CHIEFS

In addition to the Lozier cars already in use by the various city departments in New York Foster Crowell, commissioner of the department of street cleaning, has recently taken delivery of another Lozier car for his own use. General Bingham, of the police department, has also selected a Lozier car for the use of Deputy Police Commissioner Baker, of Brooklyn. The police department car is one of the 60-horsepower chain-drive models, being a duplicate of the Morris Park racer, being fitted, however, with a regular body suitable for the department work.



SHOWING INTERIOR OF THE NEW STUDEBAKER AMBULANCE

AMONG the MAKERS and DEALERS



NEW POWER HOUSE OF THE E. R. THOMAS-DETROIT CO., AT DETROIT

Handling the Buick—Fred Erickson, of Ashland, Wis., has taken the agency for the Buick machine in that city.

Handling the Haydock—P. W. Metcalf has taken the northern California agency for the Cosmopolitan, manufactured by the D. W. Haydock Mfg. Co., of St. Louis.

Starts Vulcanizing Plant—Louis Anderson, of LaCrosse, Wis., has established a vulcanizing plant in that city on Caledonia street. He will make a specialty of vulcanizing tires.

Lane Switches—W. H. Lane has resigned his position as manager of the sundry department for the Rambler Garage Co., of Milwaukee, and is now traveling salesman for the Franco-American Auto and Supply Co., of Chicago. Mr. Lane's territory will comprise the state of Wisconsin with headquarters to be at Milwaukee.

New Maxwell Garage—The Maxwell-Briscoe Automobile Co., which handles the Maxwell in states between the Missouri river and the Rocky mountains, has moved into its new building in Kansas City. It is located at 1616-18 Grand avenue, is novel in design and one of the best arranged garages in Kansas Ctiy.

French in New Venture—L. E. French, Philadelphia agent for the Pullman, has established a garage and repair shop at 1310-1312 Callowhill street, within a stone's throw of Broad street, which has been fitted up with all the requirements of a first-class business in this line. Mr. French will still retain his position as head of the local Pullman agency, but will divide his time between that and his new venture on Callowhill street.

New Rubber Company—The Lockport Rubber Works, of Lockport, N. Y., is a new concern recently organized with $300,000 capital, and with Charles F. U. Kelly as president, J. Edwin Davis as vice-president and H. M. Wood as secretary. The company is manufacturing motor car, motor cycle, solid vehicle and bicycle tires, inner tubes and sundries, as well as a complete line of mechanical goods, including hose, beltings, packings, molded goods and specialties. The plant has over 110,000 square feet of space and new and modern machinery has been installed throughout.

Handling Jenatzy Tires—The Fanning Tire Co., 1610 Michigan avenue, Chicago, has taken the western agency for the Jenatzy tire.

In a Temporary Plant—Until its new factory is completed, the Owen Thomas Motor Car Co., of Janesville, Wis., is occupying the former Janesville sash and door mills as a factory.

Selling Goods Direct—Hopewell Brothers have opened up in New York and will sell their tire cases and fabric line at 1900 Broadway, where they will carry a stock of their cases. They have withdrawn their New York agency from the Allen Auto Specialty Co. and will supply that territory through their own branch office which is in immediate charge at the present time of C. A. Russell, who formerly represented them in the New England territory.

Angus Company Growing—Although the present plant of the Angus Automobile Co., of Angus, Neb., has been in operation only about 8 months, the company finds it has outgrown these quarters and is considering an extensive enlargement of the factory. A change was made recently in the board of directors, D. C. Mills and C. M. Fuller retiring, their places being taken by S. A. Lapp and M. S. Storer. Mr. Storer also succeeds Mr. Mills as general manager of the company.

Rushed at Bryn Mawr—The Pennsylvania Auto Motor Co., of Bryn Mawr, Pa., announces its factory is working to the full limit and that it is putting on new men. The new Pennsylvania 25, type D, is being put through. It is made in both roadster and touring car forms, with 105-inch wheelbase, valves in the head style of motor, 4¼ by 4¼, and unit axle transmission. The company also is making the Vanderbilt roadster, a two-passenger rig which is guaranteed to do 75 miles an hour, which, as its name implies, will be entered in the Vanderbilt. The company also is preparing to build a large addition to its factory—a building 125 by 281 feet, two stories high and which will be devoted to small car work.

Making Gas Engines—The manufacture of gasoline engines has been taken up by the Pioneer Iron Works at Antigo, Wis.

Pendleton to Have Garage—The Pendleton Automobile Co., Franklin agent at Pendleton, Ore., is building a new garage, 90 by 100 feet. This is to be equipped with first-class machinery. The state of Washington contains 186 Franklins.

Outing for Thomas Force—The second annual outing and picnic of the employees of the E. R. Thomas Motor Co., of Buffalo, will be held on July 11. The excursion will be held at Cascade park and the Seventy-fourth regiment band of Buffalo will accompany the excursionists. A ball game for a silver trophy, races, athletic events and other enjoyable features will be on the day's program.

Progress at Newcastle—Although the new plant of the Maxwell-Briscoe Motor Co. at Newcastie, Ind., has only been running a short time, there are now 548 names on the company's pay roll. This number is being added to and before long it is expected that the company will have at least 1,500 men working. Since the company located in Newcastle that city has secured a street car line, consisting of one electric street car running to the factory district.

Mitchell Business—The Mitchell Motor Car Co., of Racine, Wis., has had plans prepared for two large additions to its factory, to be completed by November 1. There will be an addition, 100 by 100 feet in dimensions, to the main factory, and a warehouse, 175 by 330 feet in dimensions. Work already has been started. The buildings will be of concrete construction. James W. Gilson, sales manager, declares the May output will total 300 cars of all types; March had 225 and April 242. Mr. Gilson says the company will have done more business by July 1 than in all of last year. The force of workmen numbers 610 men. Comparative statistics have been prepared to show that 1908 will be a

record-breaker. In 1904 eighty-two cars were built; 1905, 315; 1906, 666; 1907, 1,377; 1908, expected, 2,500.

Secures J. F. Willard—The Union Gas Engine Co., of San Francisco, announces it has secured the services of John F. Willard as manager of the company.

One More For Hearsey—The H. T. Hearsey Vehicle Co., of Indianapolis, which is already carrying large lines of motor cars, carriages and bicycles have taken the agency for the Consolidated package cars manufactured by the Consolidated Mfg. Co., of Toledo.

Denver Change—The Frichtle Automobile and Battery Co., of Denver, has succeeded Oliver P. Frichtle as manufacturer of the electric of that name. Mr. Frichtle remains with the title of president and general manager. The company's output will be 104 cars.

Hart Changes—Frederick B. Hart, who had been acting as advertising manager for Thomas B. Jeffrey & Co., has severed his connection with that concern, and now is advertising manager for the Excelsior Supply Co., 233 Randolph street, Chicago.

Has New Power House—The E. R. Thomas Detroit Co. has built a new power house. The building is 160 feet by 50 feet. In addition to the engine room the building also contains a room for the assembling of motor car frames and also the engine testing room. This is built of concrete blocks on the same style as the rest of the plant.

Trade Boom in Boston—There are a lot of surprised motor dealers in Boston at present. Their surprise has been the result of the many prospectives that have suddenly sprung up since the first breath of fine weather coaxed the grass above the ground and who have been hustling to get motor cars. Orders have been coming in regularly every day in a manner that no one would have believed possible a few weeks ago. Even the more optimistic of the dealers have been taken off their feet by the way the people have come looking to get cars. Some of the men had felt there would be a stimulus to business and gave orders to their factories based on assumption merely. Now these men are reaping the reward of their foresight. Others who were more conservative find they cannot fill the demands for early deliveries and many a sale will be lost in that way. The people want the cars right away and when they cannot get them from one concern they go to another. At present the orders on many books in Boston are far ahead of the same time a year ago, and last year was considered good. The dealers are at a loss to account for the sudden boom and the money in sight. One man who has watched the business affairs of this section closely said it is easily accounted for by the New England conservatism, the people there refraining from going into the stock market after they read the disclosures of a year ago, putting their money where it could be got easily and now they are ready to have some enjoyment from it by taking a motor car which will give them a run for their money.

Atlas Running Nights—The Atlas company, of Springfield, Mass., has been forced to run nights in order to keep up with orders. It recently turned out a four-cylinder, four-passenger roadster which is credited with having done 60 miles an hour with ease.

Ride for the Blind—The Boston dealers have agreed to take the boys from the Perkins institute for the blind on their annual trip to Sharon on June 9. This is one of the charitable affairs that is arranged annually by the Hub dealers and it attracts a great deal of attention.

Building Model Garage—Dr. Lewis Sherman, a well-known practitioner of Milwaukee, is building a $15,000 garage on Jackson street, Milwaukee. The building will be a model of its kind, 60 by 116 feet in dimensions, two stories and basement, of solid brick and steel construction. It will be heated by steam, with cement floors.

Investigating Gas Engine—The students of Syracuse university have shown great interest in the study of gas engine and motor car construction. Every now and then a party of students and professors visit the Franklin factory, spending sometimes half a day studying the construction of the cars, investigating the special apparatus and testing machines employed for various purposes by the Franklin people.

Last '08 Packard Finished—May 21 was a gala day in the testing department of the Packard Motor Car Co., of Detroit. The last of the 1908 Packard cars was given the final road test and the work of the testing corps was ended for the season. The testers celebrated the occasion and emphasized the fact that they had completed the year's output of 300 more cars than were made last year 12 days ahead of the scheduled time. With the last car much decorated in red, white and blue, flags and banners, and with one of the testers impersonating Uncle Sam, the whole crew climbed into the car and drove it over the streets of Detroit.

New Milwaukee Concern—The Automobile Steering Co., to be located at Milwaukee, has been organized with a capital stock of $25,000 and the incorporators are P. M. Rozeant, Rossiter Lines and H. S. Green.

Neale Handling Electrics—A. F. Neale, formerly with the Harry Fosdick company, has resigned and has taken on the Baker electrics. He has his headquarters in the motor mart. The Baker electrics were formerly handled by the Fosdick company.

Has a Sub-Branch—To better care for the New York trade, the Hartford Suspension Co., which has just moved its main offices to 150 Bay street, Jersey City, N. J., has opened a branch at 212 West Eighty-eighth street, near Broadway, New York, in charge of Ernest R. Waterman.

More Reo Buildings—"Plans are now matured for breaking ground in the immediate future for two more large buildings at our factory," says R. E. Olds, president of the Reo Motor Car Co. "One of these is to be 150 by 500 feet and the other 100 by 150 feet, the latter a three-story building. In other words, there will be about 200,000 feet of floor space added to the Reo plant. These increased facilities have been needed for some time in order to keep pace with the tremendous growth of our business."

Still Handling Cars—Having bought the property of the Auto Supply and Storage Co., at 1416 Madison avenue, Baltimore, the newly incorporated Auto and Accessories Co. will not give up the handling of motor cars, as stated in a recent issue of Motor Age. Instead it will continue to handle the same line carried by its predecessor and also will manufacture and put on the market motor goods made under the Norwood and Nelson patents. The garage has been increased in capacity until now it is capable of caring for 100 cars.

PACKARD CELEBRATION OF COMPLETION OF ITS LAST 1908 CAR

Brief Business Announcements

Springfield, Ill.—The Triumph Motor Car Co., of Chicago, has been dissolved.

Elkhart, Ind.—The Elkhart Motor Car Co. is erecting a new plant in the Sterling-Hudson addition.

New York—Plans have been filed for the new garage to be built for the New York Taxicab Co. at 622-640 West Fifty-seventh street.

Newark, N. J.—The Mora Motor Car Co. has moved into its new factory and plans are being prepared for additional new buildings.

Utica, N. Y.—Harry H. Mundy, who has been in the supply business, has become associated with Walter R. Grounsell, the new agent for the Buick.

Mechanicsville, N. Y.—Work is almost completed on the Dunigan garage and repair shop on School street, and it will soon be ready for occupancy.

Utica, N. Y.—P. J. Schafer, formerly connected with the Utica Motor Car Co., has been appointed agent for the Mitchell car, and has opened headquarters at 321 Genessee street.

Harrisburg, Pa.—The Belden Motor Car Co., of Pittsburg, which recently made application for a charter, has been incorporated with a capital stock of $5,000. Ernest D. Nevin is the treasurer.

Camden, N. J.—The Standard Automobile Co. has leased the property along the river front from Thirty-third to Thirty-seventh streets, and will erect a factory. The company is to manufacture motor cars, motor cycles, motor boats, and will also handle repair work of all kinds.

Pittsburg, Pa.—A new company has been organized, to be known as the Union Automobile Repair Co., and has leased the old car barns at 6233-35 Penn avenue, which are being remodeled. Edward C. Haus, formerly with Banker Brothers, is to be the manager of the new company.

Atlanta, Ga.—Application has been made by Alfred Austell, C. L. Elyea and W. C. Warren, for a charter for a new company, to be known as the Elyea-Austell Co., which will deal in bicycles, motor car supplies, talking machines and sporting goods of all kinds. The new company is to have a capital stock of $60,000.

New York—A petition in bankruptcy has been filed against the Empire State Engineering Co. with offices at 149 Broadway and factories at 555 East One Hundred and Sixteenth street, and at Rome, N. Y. The company is a New York corporation, with a capital stock of $500,000, and manufactured electrical devices for motor car and truck propulsion. Bonds of $75,000 have been issued against the plant at Rome, and according to the creditors' petition, liabilities for material amount to more than $20,000.

Newark, Del.—The Automobile Equipment Co. has filed articles of incorporation in this state with a capital stock of $200,000.

Vincennes, Ind.—Work has been commenced on the erection of a new garage on Fairground avenue, to be occupied by Bert Whitehouse and Thomas Cappell.

Philadelphia, Pa. — Application will shortly be made for a charter for a new concern to be known as the Sadler Corporation, Inc., which will deal in motor cars and other vehicles.

Albany, N. Y.—The Empire Motor and Machine Co., of Bainbridge, has been incorporated with a capital stock of $10,000, and will manufacture shaper guards and machines of all kinds.

Canastota, N. Y.—A petition in involuntary bankruptcy has been filed against the American Gasoline Motor Co., of Baldwinsville. The liabilities are more than $12,000, and the assets about $8,000.

New York—The Regal Motor Car Co., of New York City, has been incorporated with a capital stock of $50,000, and will handle the product of the Regal Motor Car Co., of Detroit, Mich. Walter C. Martin, formerly the agent for the Cadillac, has been appointed manager of the new concern, which will have its headquarters in the Rhinelander building, at Sixty-eighth street and Broadway.

Branford, Conn.—Burton Bean, of Short Beach, has opened a garage on West Main street.

New Haven, Conn.—Fitten & Wakeman have opened a machine and repair shop at 8-10 Wooster street.

Trenton, N. J.—Charles H. Cunningham has been appointed manager of the Swift garage, at Chambers street and Greenwood avenue. This concern has the sub-agency for the Franklin.

Muskegon, Mich.—Work has been commenced on the new garage to be built on Clay avenue for the Muskegon Bicycle and Auto Co., and it is expected to have the new building in readiness by the end of the month.

Utica, N. Y.—W. A. Counsell has opened a garage on Court street, at the head of Broadway, where he will act as agent for the Buick. In the near future Mr. Counsell intends to open another garage on Genessee street.

Boston, Mass.—Fred H. Adams, who has been identified with the commercial vehicle end of the motor car business, will in the future be interested in the pleasure car field. He has associated himself with the Stranahan-Eldridge Co., eastern New England agent for the Buick.

Newark, N. J.—A. H. Newton is one of the leading factors in a new motor car manufacturing concern which is being formed. The company has taken over the patents of a local mechanic, and will put a gasoline car on the market, commencing with a 30-horsepower runabout. The new car is to have a valveless engine.

Topeka, Kan.—A company is in process of organization with a capital stock of $75,000, to engage in the manufacture of motor cars. Albert T. Reid and Terry Stafford, for 8 years superintendent of the Smith Automobile Co., are the backers of the concern. J. F. Billings, the sales manager of the Smith company, will probably act as sales manager.

Pittsfield, Mass.—Attorney William Tuttle, acting for the bondholders of the Berkshire Motor Car Co., purchased for $50, at public auction last week, the effects of the company from the sheriff, who acted as auctioneer. This bid enables the bondholders to secure the property of the company subject to a well-secured mortgage of $28,000 to the Berkshire Loan and Trust Co. The bondholders, however, will not try to sell any of the patents now held by the company, but will endeavor to make advantageous arrangements for the manufacture of the Berkshire car by some other company.

RECENT INCORPORATIONS

New York—American-Zust Motor Co., capital stock $50,000, to manufacture motors, motor cars, boats, airships, etc. Incorporators, W. F. Sykes, W. F. Sykes, Jr., and L. L. Weber.

Trenton, N. J.—Taxi-Motor Car Co. of Philadelphia, of Jersey City, capital stock $300,000, to manufacture motors, engines, vehicles, etc. Incorporators, C. A. Cole, R. F. Tully and Franklin Vreeland.

Hoboken, N. J.—International Generator Co., capital stock $100,000, to manufacture machinery, engines, motors, cars, etc. J. B. Whiting and W. P. Jessup are the incorporators.

Buffalo, N. Y.—People's Auto Delivery Co., capital stock $100,000, to run a baggage and freight transfer business and manufacture motor cars, carriages, carts, motor vehicles, etc. Incorporators, D. S. Ferris, H. E. Barnett.

Asbury Park, N. J.—Zacharias Garage Co., capital stock $100,000, to manufacture motors, vehicles and electric and other motors. Incorporators, C. R. Zacharias, L. Hulit.

Camden, N. J.—The Pennsylvania Taximeter Cab Co., capital stock $50,000, to operate coaches, carriages, cabs, taximeter cabs, etc. Incorporators, J. C. Hinckle, W. C. Wilson, H. H. Voorhees, of 207 Market street, Camden.

Rochester, N. Y.—The Gearless Motor Car Co., capital stock $300,000, to engage in the manufacture of motor cars fitted with a gearless apparatus invented by a Rochester man.

New York—Riverside Automobile Co., capital stock $10,000, to manufacture motor cars, etc. Incorporators, J. D. Baker, S. B. Howard.